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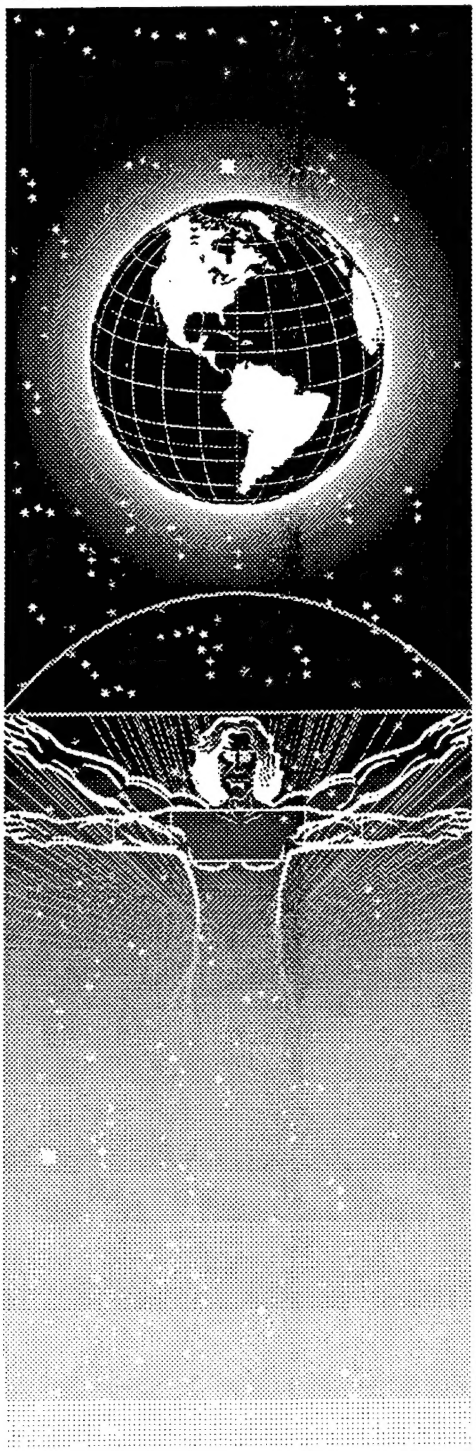

UNITED STATES AIR FORCE
ARMSTRONG LABORATORY

Missouri Industrial Wastewater System Characterization and Analysis, Whiteman Air Force Base

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March 1998

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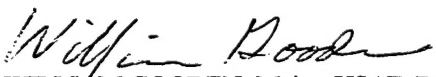

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13. ABSTRACT *(Maximum 200 words)*

Personnel from the Armstrong Laboratory Water Quality Branch conducted an industrial wastewater system characterization survey (IWSCS) at Whiteman Air Force Base, Missouri; 17 March through 4 April 1997. The scope of the investigation was to determine the cause of existing operational difficulties with the industrial wastewater system and to identify pollution prevention opportunities that could enhance system management. The IWSCS analysis indicated industrial wastewater treatment plant unit operations were performing significantly below design expectations and the overall volume and character of industrial wastewater generated at Whiteman AFB was of low flow during dry weather and less strength than typical domestic sewage. The cause of the poor IWTP performance was determined to be related to the 1) hydraulic and organic characteristics of the raw influent wastewater and 2) fundamental modifications of basic plant operation. The general character and nature of industrial wastewater at the base was found to be controlled by industrial and flight operations, fuel releases, and fire protection system alarms.

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Industrial Wastewater System, Industrial Wastewater Treatment Plant, Clarifier, Dissolved Air Flotation, Activated Carbon Filter, Aqueous film Forming Foam, Pollution Prevention, Fire Protection.

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SECTION I

INTRODUCTION

At the request of Mr. Gary Nault, Headquarters Air Combat Command, and the 509th Civil Engineering Squadron, personnel from the Armstrong Laboratory/Occupational Environmental Health Directorate, Water Quality Branch (AL/OEBW) visited Whiteman Air Force Base (AFB) with support from Mitretek Systems (AL/OEBW contractor) to conduct an *Industrial Wastewater System Characterization Survey* (IWSCS). Initial direction for this survey was based on recommendations from the *Whiteman AFB Industrial Wastewater Treatment Plant Characterization and Analysis Report* (May 1997). The characterization of the operational problems associated with the Whiteman AFB Industrial Wastewater Treatment Plant (IWTP) was conducted in December 1996. The report determined that insufficient information and data concerning the actual hydraulic and organic loading characteristics of Whiteman AFB industrial wastewater was available to finalize recommendations concerning needed operations changes or modifications to the IWTP. The IWSCS was initiated during a site visit that began 17 March 1997 and concluded 4 April 1997 to address this need for additional information. All IWSCS activities were coordinated through the Whiteman AFB 509th CES/CEV. This report would not have been possible without extensive help and support from Mr. Ed Lenz-509th CE/CEO, Mr. Darrell Tackett-509th CE/CEOI, Mr. Jerry Whitford-509th CE/CEC, Captain Pollack 509th CE/CEO, and Mr. Jim Diddier-509th CE/CEF. The principal Whiteman AFB points of contact for the AL/OEBW team were:

- Mr. Ed Lenz
- Mr. Darrell Tackett, and
- Mr. Jerry Whitford.

AL/OEBW field team members on this project were:

- Master Sergeant Mary Fields, Enlisted Team Leader
- Lieutenant David Mihalik, Field Team Leader,
- Staff Sergeant Rusty Habel,
- Senior Airman Richard Charles,
- Senior Airman Jason Giles,
- Captain Scott Nickerson, and
- James Morgan, Principal Engineer and Hydrologist, TEAM, LC.

A special note of appreciation is extended to Capt. Nickerson, Lt. Mihalick, S. Sgt. Habel, Sr. A. Charles and Sr. A. Giles, whose long hours of hard work enabled the field elements of this project to be completed successfully.

Other team members made important contributions at the analytical laboratory facilities located at Brooks AFB, Texas. Armstrong Laboratories Analytical Services Group provided accurate and precise analytical data during a time critical turn around period that enabled this report to be produced rapidly. Project team members who worked in support of this project element were:

- Lt. Colonel Victoria Dunovant, Analytical Services Chief,
- 2nd. Lieutenant Gerardo Ramos, AL/OEA
- Master Sergeant Doris Dohner, AL/OEBW
- Staff Sergeant Carl Bates, AL/OEA
- Ruth Weddell, AL/OEA
- Sr. A. Barry Calhoun, AL/OEA
- Susan Smith, AL/OEA
- Denene Turner, AL/OEA and
- Lt. Colonel Locke, AL/OEA

The IWSCS was organized into three distinct activities that occurred during the AL/OEBW field team visit at Whiteman AFB. The activities were:

1) initial review and familiarization with base industrial, fire protection, fuel distribution, and other flight support operations,
2) site visits to all industrial shops generating wastewater adjacent to the flight line area, and
3) intensive observation and long term sampling of industrial wastewater at critical points within the industrial wastewater collection system.

After completion of the above activities, the AL/OEBW Field Team made an initial assessment of the industrial wastewater problems and the associated flight support and industrial operations impacting industrial wastewater character. These initial field review results and recommendations were organized within an out-briefing outline. The out-briefing outline was presented by Master Sergeant Mary Fields Friday; 4 April 1997 to interested parties at Whiteman AFB. The initial findings and IWSCS assessment were reviewed at that time.

1.1 Purpose

The purpose of the AL/OEB *Industrial Wastewater System Characterization Survey* (IWSCS) conducted at Whiteman AFB was to:

1) develop an understanding of the Whiteman AFB industrial operations impacting the quality, quantity and character of raw industrial wastewater,

2) observe, characterize and identify flight operations and wastewater discharges adversely impacting the IWTP or general character of industrial wastewater,
3) develop recommendations and/or a plan of action to address any issues having an adverse impact on the general industrial wastewater system, the IWTP, and the Federally Owned Treatment Works (FOTW).

The purpose of the IWSCS was accomplished. Initial observations and recommendations from the AL/OEBW Field Team were provided to Whiteman Air Force Base personnel at the out-briefing. A copy of the AL/OEBW Field Team's out-briefing outline is provided as Appendix 1. The purpose of this report is to present follow up information developed as a result of the field investigation and analysis of the industrial wastewater samples collected. An important function of this report is to integrate the sample data collected from the IWTP on 12 December 1996 and other written technical information obtained during the Whiteman AFB site visit, with the actual observations and recommendations made during this survey. This approach will allow the 509th CES to develop decisions for managing and treating the industrial wastewater generated by the current flight operations in a manner that will cause minimal disruption to other base operations and will support continued compliance with the wastewater discharge limitations of the National Pollutant Discharge Elimination System (NPDES) Permit.

1.2 Background

Whiteman AFB, Missouri is the home of the 509th Bomber Wing. The 509th Bomber Wing is comprised of the most technically advanced and sophisticated airplane in the world, the B-2 Stealth Bomber. An A-10 fighter squadron and helicopters are also located at Whiteman AFB. Prior to this new air wings' location at Whiteman AFB, the primary base occupant was the 351st Missile Wing. The location of the new air wings at Whiteman AFB has impacted a large number of base operations that generate industrial wastewater. Sverdrup Corporation conducted an industrial wastewater pretreatment survey in the spring of 1995. The base's primary occupant during the 1995 pretreatment survey was still only the 351st Missile Wing. Operations supporting the mission of the B-2 Stealth Bomber potentially generate wastewater containing many contaminants not historically associated with the industrial activities at Whiteman AFB. Addition of the A-10 fighter wing has resulted in additional jet engine maintenance activity and plane washing wastes. Consequently, the hydraulic and organic characteristics of industrial wastewater at Whiteman AFB have changed since the original IWTP was designed.

The new 509th mission has had many impacts. One impact of the new mission is heightened concern for worker safety. Many components used for construction and maintenance of the B-2 are hazardous materials. As such, special training and medical monitoring has been provided for some workers that could be exposed to chemical hazards. Also, maintenance activities and flight support operations that may expose workers to chemical hazards have been submitted to intensive review by base management

and general awareness of the dangers of exposure to chemical hazards has been improved among both civilian and military workers.

Workers at the IWTP have not been subjected to an annual medical monitoring program designed to monitor their exposure to chemical hazards. Many plant operators have reported odors similar to rotten eggs or hydrogen sulfide. Some workers believe headaches and fatigue they experience may have been related to the odors. A health and safety incident occurred at the facility in August 1994 that resulted in plant shut down. Employees experienced acute respiratory tract irritations, which required medical attention. Many parties involved with the industrial wastewater treatment operations have generally expressed a concern for personal safety at the IWTP. The adequacy of industrial wastewater pretreatment and questioning of the need for industrial treatment facilities have also become issues because suspension of the IWTP operations since September 1996 has not resulted in an apparent effluent violation of the NPDES permit governing discharges from the FOTW. Also, industrial shop workers supporting B-2 operations at Whiteman AFB have expressed heightened interest and concern relating to both the use of hazardous materials and their ultimate disposal or treatment. This increased chemical hazard awareness has focused substantial effort on pollution prevention amongst the B-2 related industrial shops. This background information was very useful to the AL/OEBW Field Team when evaluating actual operations.

1.3 Overview of Industrial Operations

The principal industrial operations at Whiteman AFB are associated with support of the 509th Bomber Wing. Flight operations and maintenance in support of the A-10 fighter wing, T-38 flight training wing and a helicopter squadron were also believed to significantly impact the characteristics of the industrial wastewater at the base and were a prominent element of focus and study by the IWSCS field team. Typical industrial activities performed at Whiteman AFB are:

- jet engine maintenance and repair,
- non-destructive structural inspection activities,
- routine airframe maintenance,
- plane fueling operations,
- petroleum storage,
- hydraulic maintenance,
- plane washing,
- aircraft deicing,
- Aircraft ground equipment (AGE) operation and maintenance,
- corrosion control,
- electrical equipment and instrument maintenance,
- equipment testing,

- refueling vehicle maintenance,
- photographic development laboratory,
- fire protection and fire protection hydrant testing,
- vehicle and AGE washing,
- floor cleaning in shops and hangars, and
- other routine aircraft maintenance activities.

Wastewater generated from these industrial activities has the potential to vary markedly as a result of potential chemical releases from maintenance and flight operations in support of the B-2 wing. Potential releases of complex organic and heavy metal contaminants to the industrial wastewater system have been a concern of the CES/EM flight for some time. Consequently, extensive pollution prevention activities and awareness training has been provided to many Whiteman AFB personnel. Generally, wastewater produced at Whiteman AFB, Missouri was believed to be similar to the industrial wastewater generated from comparable activities at other Air Force facilities. However, field observations and sample data collected during the survey determined that many of the Whiteman AFB industrial shops and flight operations produce very small volumes and very weak or mild strength industrial wastewater when compared to those of other Air Force facilities.

1.4 Description of Industrial Wastewater Treatment System (IWTS)

The Whiteman AFB Industrial Wastewater Treatment System is comprised of six primary elements. The design and construction of the system was initiated in February 1991 before any B-2's were operational. Consequently, many critical design parameters were not based on actual data. The primary IWTS elements are the; 1) industrial wastewater pretreatment units, 2) industrial wastewater collection system, 3) aqueous film forming foam (AFFF) surge facilities, 4) industrial waste equalization facilities, 5) the IWTP, and 6) the FOTW. Each IWTS element serves an important purpose with respect to the conceptual design and operation of the industrial wastewater treatment system. The principal function of each IWTS element is:

1. industrial wastewater pretreatment units (e.g., oil/water separators) are in place to remove shock loads of oil and grease or suspended solids,
2. the collection system conveys the industrial wastewater from their source to the IWTP for initial treatment,
3. the AFFF surge facility provides temporary storage for hi-oxygen demanding wastes associated with fire protection,
4. equalization facilities normalize extreme variances of hydraulic and organic wastewater characteristics,
5. the IWTP provides the principal pre-treatment for industrial wastes to ensure NPDES Permit No. MO-0029378 compliance and

6. the FOTW provides a secondary or last option capability to treat industrial wastewater and ensure permit compliance at a point of discharge to waters of the State of Missouri.

The technical focus of this IWSCS was on elements two and three noted above. Attention was also given to element one, industrial wastewater pretreatment facilities, in order to assess any adverse impact on industrial wastewater character resulting from insufficient maintenance or improper operation. A drawing of the Whiteman AFB IWTS facilities and a legend identifying their location is presented as Figure 1.

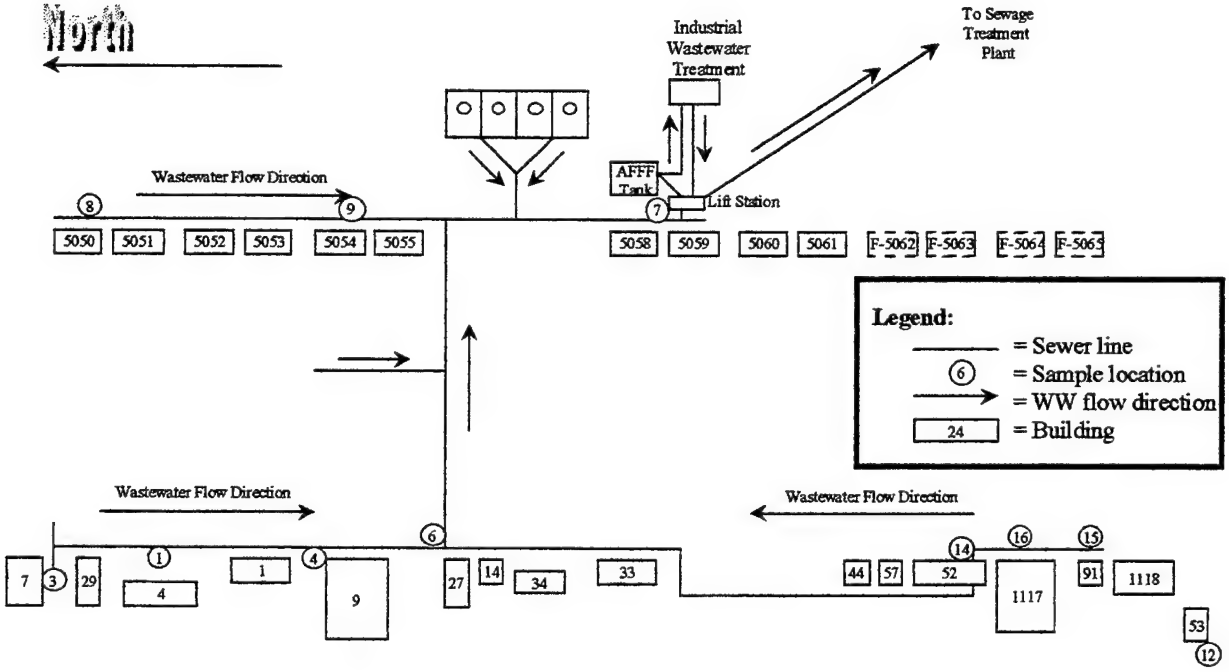


Figure 1: Drawing of Whiteman AFB Industrial Sewer, Shops, and Industrial Wastewater Treatment Plant

1.5 Problem Summary

Many questions and uncertainties concerning operation of the IWTP and the character and nature of industrial wastewater have been raised by managers, and workers at Whiteman AFB. Some of the more critical issues are:

- Workers are concerned that they are exposed to unknown chemical hazards that may affect their health.
- The character and nature of industrial wastewater at Whiteman AFB has not been previously established with sufficient certainty.
- The impact of individual industrial shops at the base on environmental operations is not adequately known.
- Management is concerned industrial wastes may cause the FOTW to not comply with the NPDES discharge limitations.
- Are there odors at the IWTP and, if so what are they?
- Does the IWTP work effectively?
- Is the IWTP actually needed?
- How can wastewater foaming caused by AFFF be prevented?
- Will an oil/water separator eliminate any or all-remaining industrial wastewater system problems?

Many of the concerns listed above were addressed in a previous report entitled the *Whiteman Air Force Base, Missouri Industrial Wastewater Treatment Plant Characterization and Analysis* (May 1997, Morgan & Fields). This report provides answers to all the significant remaining issues.

1.6 Problem Analysis

The *Whiteman Air Force Base, Missouri Industrial Wastewater Treatment Plant Characterization and Analysis* report provided answers to the questions:

- Are there odors at the IWTP and, if so what are they? *Yes, hydrogen sulfide and jet fuel odors are two examples*
- Does the IWTP work effectively? *No, 12 December 1996 operation of the IWTP resulted in negative average treatment efficiencies for chemical oxygen demand and heavy metals reduction.*
- Management is concerned industrial wastes may cause the FOTW to not comply with the NPDES discharge limitations. *Surges of industrial waste such as AFFF or a major fuel spill could cause the FOTW to operate in a manner non-compliant with the NPDES permit requirements. Such an event would likely be of short duration (<30 days).*

The answers to the remaining significant issues were addressed by this study. These answers are:

- The character and nature of industrial wastewater at Whiteman AFB has not been previously established with sufficient certainty. *The character and nature of Whiteman AFB industrial wastewater is of very low flow or volume and generally of organic strength less than domestic sewage. Potential surges of AFFF or jet fuel contaminants may occur and may cause serious FOTW operational problems that could result in NPDES permit non-compliance.*
- The impact of individual industrial shops at the base on environmental operations is not adequately known. *Generally, operations associated with the B-2 mission have very little detrimental impact on industrial wastewater. Maintenance activities and flight support operations associated with the A-10 and T-38 wings generate industrial wastewater that have the greatest potential for routine industrial wastewater management problems.*
- Is the IWTP actually needed? *Under normal conditions the IWTP is not needed to ensure compliance with the NPDES permit. However, additional treatment facilities are needed to manage industrial wastewater loads that could occasionally surge the FOTW capacity. It is recommended that the IWTP be modified and maintained as operational to treat potential industrial contaminants that may be generated as a result of a spill or from a change in the existing B-2 maintenance and flight operations support.*
- How can wastewater foaming be prevented? *Addition of a foam suppressant at critical points within the industrial wastewater collection system is currently effective for control of normal discharges of AFFF.*
- Will an oil/water separator located downstream from the AFFF surge basin eliminate any or all-remaining industrial wastewater system problems? *An additional oil/water separator is needed to effectively manage free jet fuel associated with industrial wastewater.*
- Workers are concerned that they are exposed to unknown chemical hazards that may affect their health. *No unexpected chemical hazards were identified during the IWSCS, however both IWTP and FOTW workers are confronted with potential exposure to chemical hazards. A wastewater treatment plant worker has historically been a profession that is very prone to accidents and chemical hazards. It is recommended that both IWTP and FOTW workers undergo annual medical monitoring in compliance with EPA/OSHA requirements for workers exposed to hazardous wastes and materials.*

Additional information on all of these issues is provided within this report.

SECTION 2

INDUSTRIAL WASTEWATER SYSTEM CHARACTERIZATION SURVEY METHODS and APPROACH

The Industrial Wastewater System Characterization Survey (IWSCS) was organized into three distinct investigative activities. The activities were:

1) initial review and familiarization with base industrial, fire protection, fuel distribution, and other flight support operations,
2) site visits to all industrial shops generating wastewater adjacent to the flight line area, and
3) intensive observation and long term sampling of industrial wastewater at critical points within the industrial wastewater collection system.

Significant study of the Whiteman AFB industrial wastewater system (IWS) and careful planning of the IWSCS objectives, data needs, sampling protocols and analytical laboratory methods prior to the March-April 1997 site visit enabled the requirements of each IWSCS investigation activity to be accomplished. The methods of approach and other important elements for accomplishing each of the IWSCS activities are presented in this section of the report.

2.1 Review of Key Industrial Shops and Flight Support Operations

Each industrial shop and flight operation support activity was assessed and prioritized prior to the field survey for identification of problems and actions likely to impact the character and nature of the industrial wastewater at Whiteman AFB. Table 1 identifies the maintenance activity or flight support function and associated building number of industrial activities at Whiteman AFB.

Table 1: Industrial Wastewater Function and Building Number

Building #	Function	Building #	Function
1	B-2 Fuel Cell Hanger	2	B-2 Engine Maintenance
4	AGE and BRA Storage	7	AGE
9	B-2 Maintenance Hanger	14	B-2 Weapons Load Trainer
19	Hangar 9 Storage	27	B-2 Corrosion Control Hangar
33	393rd. Bomb Squadron	34	Fire Station
35	Base Operations	36	Generator/Equipment Building
44	Army National Guard (ANG) Administration	50	Control Tower
52	ANG Maintenance	69	TE Load Test Facility
90	Petroleum Operations	91	T-38 Maintenance Hangar

Table 1 Continued: Industrial Wastewater Function and Building Number			
Building #	**Function**	**Building #**	**Function**
190	Hangar 9 Break Patio	1117	A-10 Maintenance Hangar
1118	A-10 Special Purpose Hangar	`1119	A-10 Composite Maintenance
1125	Refueler Vehicle Maintenance	5050	B-2 Maintenance Dock # 1
5051	B-2 Maintenance Dock # 2	5052	B-2 Maintenance Dock # 3
5053	B-2 Maintenance Dock # 4	5054	B-2 Maintenance Dock # 5
5055	B-2 Maintenance Dock # 6	5058	B-2 Maintenance Dock # 7
5059	B-2 Maintenance Dock # 8	5060	B-2 Maintenance Dock # 9
5061	B-2 Maintenance Dock # 10	5062	B-2 Maintenance Dock # 11 (FY 97)
5063	B-2 Maintenance Dock # 12 (FY 97)	5064	B-2 Maintenance Dock # 13 (FY 99)
5065	B-2 Maintenance Dock # 14 (FY99)	5068	Hydrant CASS Systems
5069	Hydrant CASS Systems	5070	Hydrant CASS Systems
5070	CASS Maintenance Shop	5300	Fuel Tank
5301	Fuel Tank	5302	Fuel Tank
5303	Fuel Tank	5400	Fuel Pump House
5401	Fuel Pump Control house	5402	Fuel Pump house
5403	Hydrant CASS Systems	5413	AFFF Storage Tank
5415	Industrial Wastewater Treatment Plant		

Figure 2 presents a building location map of the maintenance and flight operations support areas generating industrial wastewater.

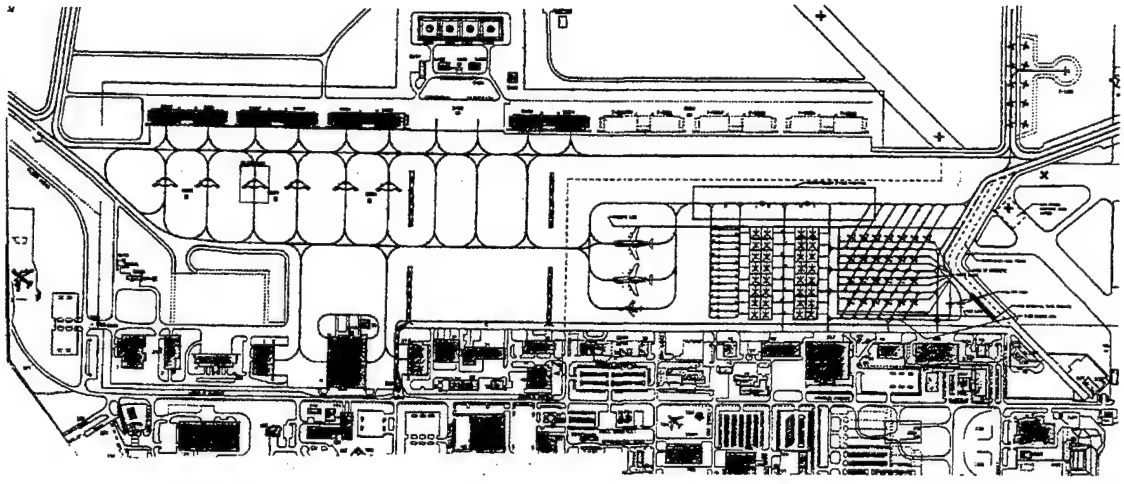


Figure 2: Building and Industrial Functions

Based upon information developed in December 1996 by the *Whiteman AFB IWTP Characterization and Analysis* and supplemented by a working knowledge of air base operations,

the fuel distribution and fire protection systems were identified as areas having significant potential impact on the IWSCS. The B-2 industrial shops located in buildings 7, 9, and 27 (*Aircraft Ground Equipment, Structural Maintenance, Jet Engine Maintenance and Corrosion Control shops)* were also prioritized as facilities likely to generate wastewater that would have a negative impact on the character and nature of industrial wastewater. In addition to sampling industrial wastewater and conducting pollution prevention opportunity assessments of the previously noted systems and industrial shops, intensive interviews were conducted by Jim Morgan and Mary Fields with;

- Ralph McHenry, Fire Chief
- Richard Organowski, Assistant Fire Chief
- Jim Didier, Deputy Fire Chief
- Tim Alms, Refueling Maintenance Foreman
- Ed Lenz, Utilities Engineer CES/CED
- Darrell Tackett, Wastewater Treatment Plant Operator

The purpose of the interviews was to develop information specific to each persons expertise as it could relate to incidents that might generate industrial wastes and contaminants that could enter the industrial wastewater collection system. Information obtained from these interviews is incorporated into the analysis and recommendations associated with their specific problem area, industrial shop, or sample site.

2.2 Industrial Shop Pollution Prevention Opportunity Assessments

Master Sergeant Mary Fields, NCOIC, conducted pollution prevention opportunity assessments (P2OA) of all industrial shops at Whiteman AFB. P2OA's were conducted by:

- interviewing key shop operations personnel,
- observation of the shop maintenance and flight operations support activities,
- review of the shop specific material safety data sheets of inventoried chemicals,
- observation of chemical storage facilities,
- evaluating operation and maintenance of hazardous waste management and industrial wastewater pretreatment facilities, and
- developing practical recommendations for pollution prevention and environmental improvement.

Individual reports outlining the specific findings and recommendations with respect to individual industrial shops and flight support activities are provided in Appendix 6 of this report. When appropriate, pollution prevention opportunity assessment observations and opportunities were incorporated within Section 4.

2.3 Industrial Wastewater System Sampling and Analysis

Sixteen sites within the Whiteman industrial wastewater collection system were identified prior to the field survey as locations providing wastewater quality information useful for system analysis. Additionally, samples of any wastewater contained within the primary AFFF surge tank (building 5413) and the IWTP equalization basin were also deemed appropriate. Table 1 identifies the sample site location with its' associated building location, industrial shop activity, and the planned sample frequency. Samples from sites 1, 3,and 14 were unable to be collected during the survey, as no industrial wastewater was generated from the associated facilities during the IWSCS.

2.3.1 Sampling Procedures, Techniques, and Laboratory Analytical Methods

Industrial wastewater sampling procedures and techniques were guided by the use of ASTM Standards D5956 and E1689. Individual aliquot's (approximately 500 ml) of composite samples were automatically collected by an ISCO peristaltic pump type sampler, at each sample site every hour. Sample aliquot's were iced and stored in glass containers until the containers were collected and manually composited and preserved.

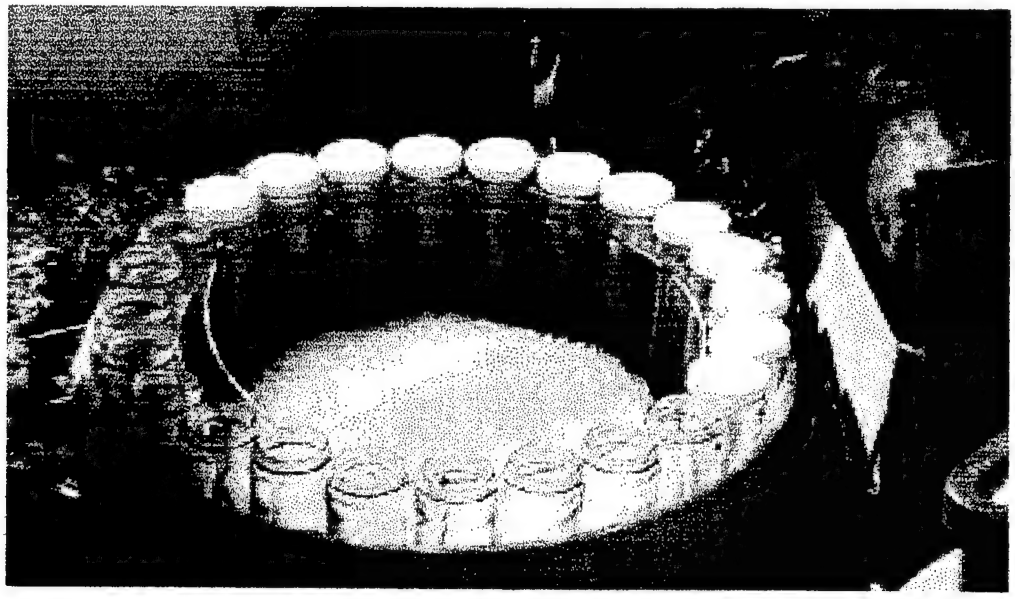


Figure 3: Composite samples were collected in glass containers with an ISCO automatic sampler, preserved for the analyte of interest and identified for Chain of Custody control before to shipment to Armstrong Laboratories Water Analysis Branch at Brooks AFB, Texas.

Original IWSCS plans were to flow weight individual composite samples using Sigma flow recorders to determine individual aliquot volumes. However insufficient industrial wastewater

flow was generated during the survey period to utilize the flow meters. Flow at most sample sites was estimated to be less than 1 gpm for most times. Consequently, only time weighted composite samples were collected during the survey.

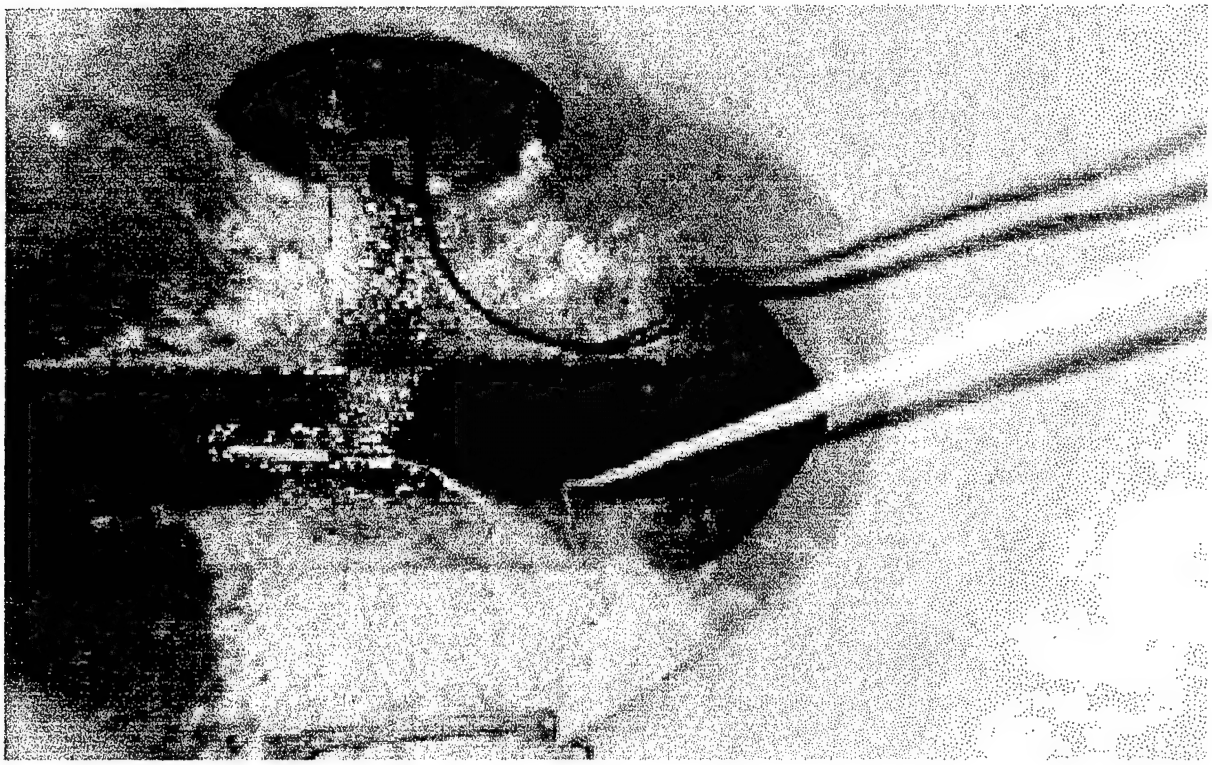


Figure 4: Industrial wastewater flow was typical of that shown at the manhole above. Lack of sufficient industrial wastewater flow to submerge the Sigma flow sensor (depicted at the top center of the photograph) resulted in collection of time-weighted composite samples for the Whiteman AFB IWSCS.

Grab samples were also collected in glass VOA vials for analysis of volatile organics from each sample site at the conclusion of each composite sample period. Standard sample preservation techniques referenced in *Standard Methods for the Examination of Water and Wastewater* guided sample preservation and transport. ASTM Type II Reagent Water and Alquinox Soap were the primary materials used for decontamination of sampling equipment and containers. The analytical method number, standard sample preservation requirements, and the method detection limit of the laboratory analytical methods used by the Armstrong Laboratory-Water Analysis Section to analyze Whiteman AFB IWSCS samples is identified in Table 2.

Table 2 Principal Laboratory Analytical Procedures			
Chemical Analyte	Analytical Method Number	Sample Preservatives	Method Detection Limit
Chemical Oxygen Demand	E 410.4	1L, 2 ml H_2SO_4	<10 mg/L
Total Organic Carbon	E 415.1	1L, 2 ml H_2SO_4	-
Oil & Grease	E 413.1	1L, Glass/ 2 ml H_2SO_4	<0.3 mg/L
Ammonia as N	E 350.1	1L, 2 ml H_2SO_4	<0.2 mg/L
T-Phosphate	E 365.1	1L, 2 ml H_2SO_4	<-.1 mg/L
Total Cyanide	E 335.1	1L, NaOH	<.005 mg/L
Total Residue	-	1L, 4° C	<1 mg/L
Filterable Residue	E 160.3	1L, 4° C	<1 mg/L
Volatile Residue	E 160.4	1L, 4° C	<1 mg/L
Sulfides	E 376.1	1L, 4° C	<0.1 mg/L
Volatile Organic Compounds	E 601/602	2-40 ml VOA vials/4° C	<.005 mg/L
Metals	E 200.7	5 ml HNO_3	-
2(2-Butoxyetoxy) Ethanol	GC/MS	2-40 ml VOA vials/4° C	<0.1 mg/L

2.3.2 Quality Assurance/Quality Control Samples

Quality Assurance/Quality Control (QA/QC) samples were collected at appropriate times during the IWSCS. QA/QC samples were collected of sampling equipment rinse water, ISCO sampling equipment blank, field reagent water, heavy metals preservative, sampling pitcher equipment blank, and blind known samples. Results of the QA/QC samples indicate the laboratory analytical methods; sampling procedures and sample preservation techniques were within the necessary control limits with respect to the precision and method detection limits required by the IWSCS. Laboratory analytical values associated with the QA/QC samples are provided with the data tables included as Appendix 3.

SECTION 3

INDUSTRIAL WASTEWATER SYSTEM ELEMENT DESCRIPTION

Seven independent elements interact systematically to compose the Whiteman AFB industrial wastewater system. At times the interaction is synergistic in nature. The seven industrial wastewater system elements are the:

- Industrial wastewater collection system
- Industrial wastewater treatment plant (IWTP)
- Federally owned treatment works (FOTW) or domestic sewage treatment plant
- B-2 industrial shops and flight operations support
- Other aircraft industrial shops and flight operations
- Five separate industrial fire protection systems
- Jet fuel distribution

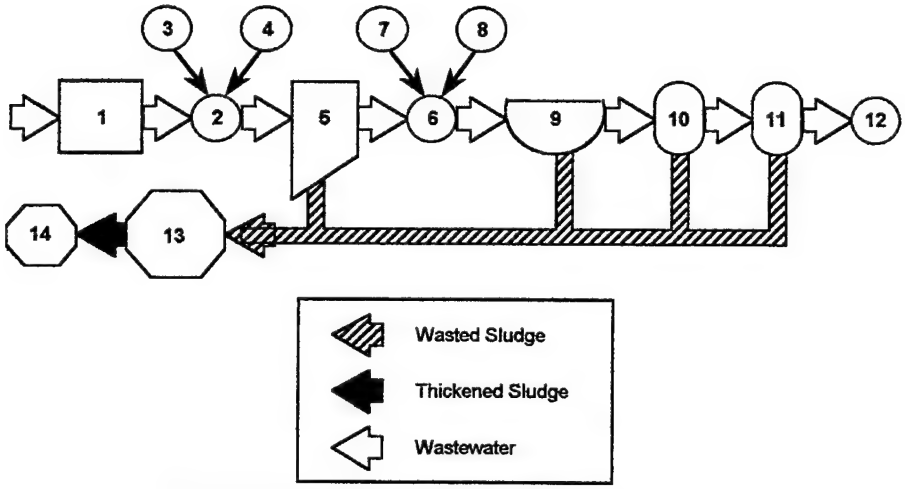
This section of the *Industrial Wastewater System Characterization Survey* provides information critical to understanding each of the above elements' environmental problems and describes their systematic interaction. Linkage of environmental problems between industrial shops, flight operations, and flight utilities sources generating industrial wastewater, the treatment capabilities and permit requirements of the FOTW, and the industrial wastewater treatment plant operations is described. The information presented here is organized by its industrial wastewater system component.

3.1 Industrial Wastewater Collection

Industrial wastewater generated from fifty one industrial shops and base operations are collected by four industrial sewer legs and trunk lines that drain to a wet well and lift station at the AFFF surge tank. Industrial wastes at the AFFF wet well either gravity flow to the AFFF surge Tank, are pumped to the equalization basin for treatment at the IWTP, or divert directly to the sanitary wastewater collection system for final treatment at the FOTW. The approximate location of the industrial wastewater collection system is shown on Figure 2. No major problems with the industrial wastewater collection system have been identified as a result of the IWSCS. Some problems with infiltration have been reported in the past and an infiltration/inflow (I&I) study of the system is currently contracted. In addition to identification of specific causes of infiltration/inflow, the contracted I&I study may possibly identify one or more industrial waste exfiltration problem within the sewer. The industrial wastewater collection system was not a primary focus of the IWSCS.

3.2 Industrial Wastewater Treatment Plant

Operational problems associated with the IWTP are responsible for initiating the IWSCS study. May 1997 report AL/OE-TR-1997-0067 provides an initial AL/OEBW assessment of industrial wastewater problems at Whiteman AFB and also describes past operational problems encountered at the facility in detail. The treatment components of the Whiteman AFB IWTP are an inclined plate clarifier, pH adjustment, dissolved air flotation, sand filters, activated carbon filters, sludge thickener, sludge filter press and effluent recycle capability. A simplified flow chart of the industrial wastewater treatment process units is provided as Figure 5. The average design flow rate or design hydraulic loading of these facilities is 60 gpm or 86,400 gpd during continuous twenty-four hour operation.



Identification Key of Numerical Operating Units

1 Equalization Basin
2 Mixer
3 NaOH pH Adjustment
4 Nalco Defoaming Polymer
5 Inclined Plate Clarifier
6 Mixer
7 H_2SO_4 pH Adjustment
8 Alum Addition
9 Dissolved Air Flotation Unit
10 Sand Filters (2 in series)
11 Activated Carbon Filters (2 in series)
12 FOTW Sewer System
13 Sludge Handling and Storage
14 Sludge Filter Press

Figure 5: Simplified process Flow Chart of the Whiteman AFB IWTP

The *"as built"* IWTP design assumptions were identified during a review of the *B-2 Support Facilities Industrial Wastewater Treatment Facility Construction Specifications and Bid Documents.* The basis of design assumptions are presented in Table 3 below.

Table 3: "As Built" IWTP Design Basis				
Contaminant or Design Parameter	**Influent Concentration mg/L**	**Waste Load ppd.**	**Effluent Treat. Objective mg/L**	**Treatment Unit**
Max. flow (system)		220 gpm	N/A	
Average flow		60 gpm	N/A	
pH	6.0-9.0		N/A	
Biochemical Oxygen Demand (BOD_5)			N/A	
AFFF*	2,000	1,441		AFFF* Surge
Chemical Oxygen Demand				
Suspended Solids	1,000	720	<1	Clarifier
Heavy Metals	200	144	<10	Clarifier
Oils/Grease	2,000	1,441	<10	DAF**
Fuels	100	72	<10	DAF**
Emulsified Oils	500	360	<10	DAF**
Solvents	500	360	<10	Carbon Filter
Phenols	25	18	<10	Carbon Filter

* Aqueous Film Forming Foam
** Dissolved Air Flotation

Identification of the design specifications was necessary for the AL/OEB field team to perform the systematic engineering evaluation of both the IWTP process units and the industrial wastewater system. Analysis of raw industrial wastewater samples collected as part of the initial AL/OEBW IWTP study indicated that Whiteman AFB industrial wastewater had very low organic strength and low flows. Initial sample data indicates the IWTP may not normally be required for compliance with the NPDES permit. Comparison of the *"as built"* IWTP design values to the analytical values derived from samples collected during the March-April 1997 investigation are critical to understanding the problems and providing recommendations that are supportive of FOTW NPDES compliance, IWTP performance, future industrial wastewater management system upgrades, and to maximize the benefit derived from good environmental practices related to aircraft maintenance and flight support operations.

3.3 Federally Owned Treatment Works (FOTW)

The FOTW's role in the management of the industrial wastewater system is to serve as a secondary wastewater treatment system for some industrial wastes (e.g., oil and grease, biological oxygen demand, pH) and to provide the last line of "defense" for compliance with the NPDES permit. The primary discharge requirements of the NPDES permit require compliance with the constituents and parameters identified in Table 4.

Table 4: NPDES Permit No. MO-0029378 Effluent Discharge Limitations, Effective Date: 1 June 1997				
Parameter	**Unit**	**Daily Max.**	**Weekly Avg.**	**Mo. Avg.**
Flow	MGD	2.19		1.26
BOD_5				
June 1-Sept.30	mg/L		15	10
Oct. 1-May 31	mg/L		20	15
C.O.D.				
June 1-Sept.30	mg/L	90		60
Oct. 1-May 31	mg/L	120		90
T. Susp. Solids	mg/L		20	15
Oil/Grease	mg/L	20		15
pH	SU			
Temperature	^0F			
Total Copper	mg/L	.043		.043
Total Lead	mg/L	.020		.020
Total Zinc	mg/L	.150		.150
Cyanide	mg/L	.022		.022
Total Phenol	mg/L	.100		.100
Total Silver	mg/L	.0082		.0082
Ammonia as N				
June 1-Sept.30	mg/L	3		2
Oct. 1-May 31	mg/L	4.5		3.5

The principal "systems" operation problem posed to the FOTW that would threaten the ability to comply with the identified requirements is a surge or slug of oxygen demanding waste or a surge of oil and grease from a petroleum spill. The Whiteman AFB FOTW incorporates primary, secondary and tertiary treatment components within the sewage treatment plant' design. The FOTW consists of pairs of primary and secondary clarifiers, two high rate trickling filters operated in parallel, two anaerobic digestors, sludge handling facilities, and four constructed wetlands treatment ponds designed for effluent polishing and metals removal. Figures 6 and 7 provide an overview picture of the general treatment units and the constructed wetland.

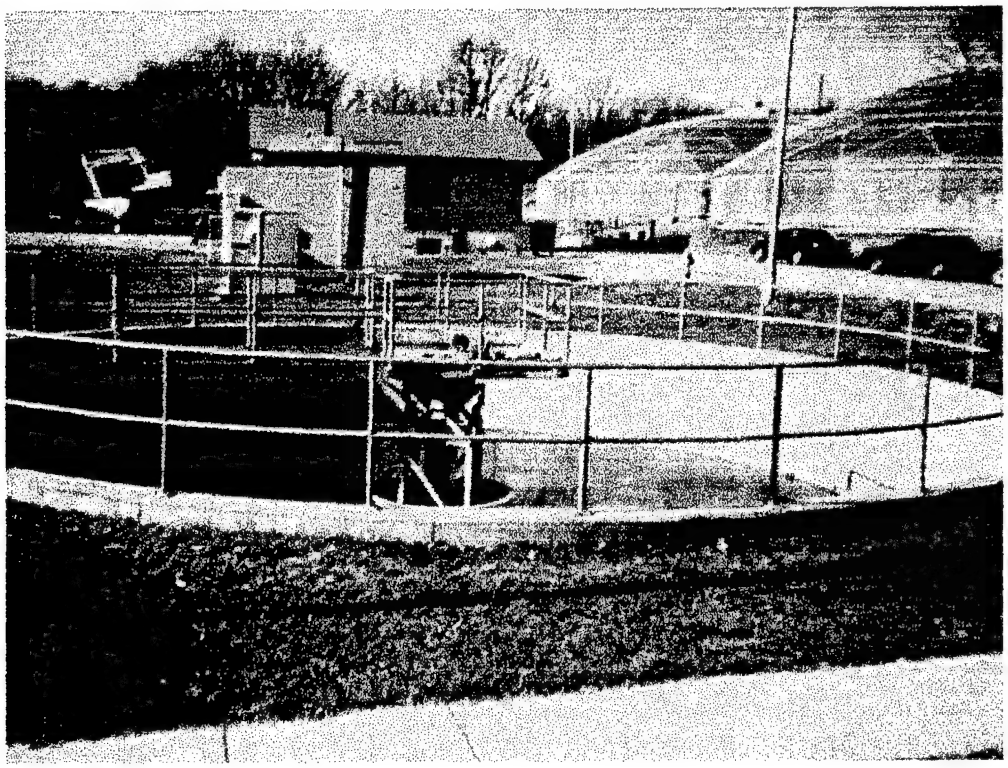


Figure 6: Photograph depicts an overview of the FOTW primary/secondary treatment units.

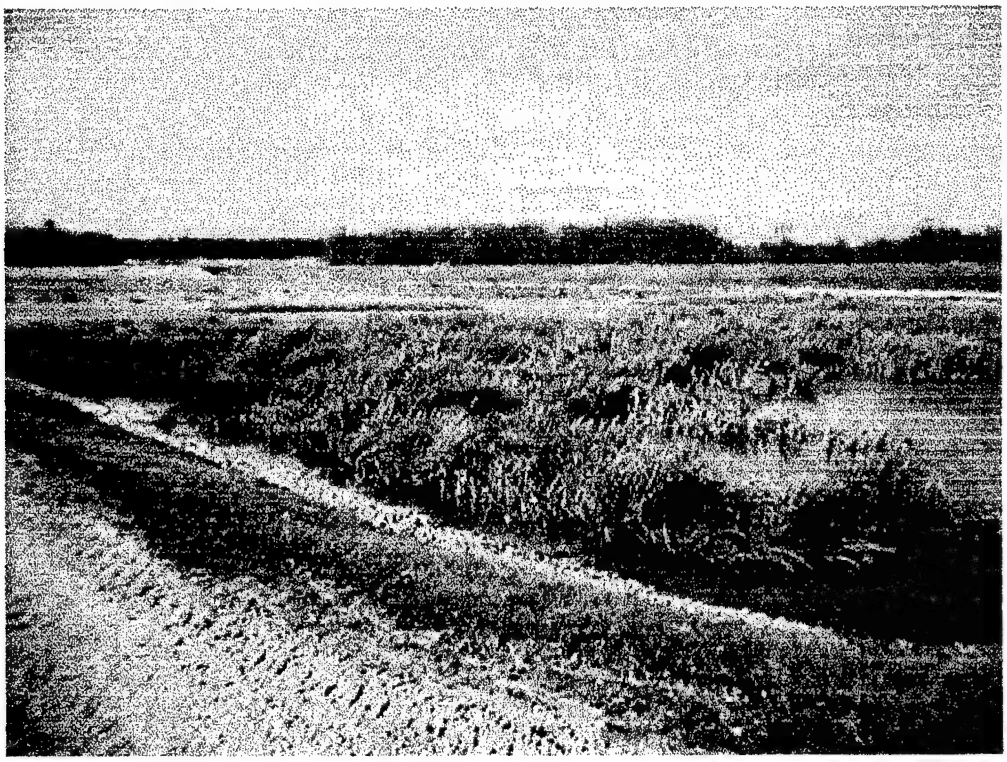


Figure 7: Photograph depicts one of four constructed wetland ponds that provide for tertiary treatment of wastewater at Whiteman AFB.

There are no treatment units at the FOTW that are specifically designed for the treatment of industrial wastes. The FOTW was not designed to respond to slugs of toxic or strong organic industrial wastes and petroleum spills. Those type industrial wastes can and have adversely impacted the FOTW. The primary surge or slug treatment capabilities at Whiteman AFB are maintained in the storage capacity of the AFFF storage tank and the IWTP equalization basin. Final characterization of the industrial wastewaters may indicate a need for secondary surge or slug treatment capabilities to be located at the headworks to the FOTW. Additionally, the average organic load on the FOTW is 760 pounds BOD_5 per day. This is significantly less loading than plant design and increases the FOTW's vulnerability to a serious surge of organics from industrial waste. If the plant were operating nearer the design load capacity of 3,150 pounds BOD_5 per day, it would be more capable to operationally respond to surges of organic loading from industrial wastewater.

3.4 B-2 Industrial Shops and Flight Operations Support

There are approximately fifty-one industrial shops supporting aircraft maintenance and flight operations at Whiteman AFB. Most major industrial shops primary mission is support of the B-2 Wing. The B-2 industrial shops having the greatest potential impact on the industrial wastewater system are the; 1) corrosion control facility, 2) structural maintenance and 3) jet engine maintenance. The principal industrial wastewater generated from these shops is floor wash water. Solvents, fuels, oil and grease, metals, and carbon filament compounds are typical contaminants that could be present in the wastewater generated from these and other shops supporting B-2 operations. Most shop operations have intensive waste minimization and pollution prevention programs in place. A "pharmacy" program for dispensing hazardous materials has also been established. Hazardous materials and wastes are normally strictly controlled and would not be released to the industrial sewer unless a spill or emergency occurred. Spill response equipment and intensive HAZMAT training has been provided to all B-2 industrial shop personnel. Industrial shops supporting the B-2 program are located throughout the flight line area.

3.5 Other Aircraft Industrial Shops and Flight Operations

Most industrial shops at Whiteman AFB principally provide support to the B-2 mission. However, several large shops provide aircraft maintenance and flight operations support for the tenant T-38 and A-10 fighter aircraft wings, as well as the Army helicopter squadron. Primary industrial activities not related to the B-2 are aircraft washing, hydraulic maintenance, and routine repair of T-38, A-10 and helicopter aircraft. The largest volumes of wastewater generated by these activities result from aircraft wash rack waste and floor washing. Solvents, soaps, oil and grease, and fuels are contaminants that can routinely be expected to be found in this wastewater. Most of the non B-2 related industrial shops are located near the southeastern most area of the

flight line. Figure 8 depicts a typical maintenance operation associated with the Apache helicopter aircraft.

Figure 8: Routine maintenance is performed on an U.S. Army Apache helicopter at building 52. Normally, very small volumes of wastewater are generated as a result of these and similar routine maintenance activities.

3.6 Fire Protection Systems

Fire protection systems are an integral element of the industrial wastewater system and associated problems at Whiteman AFB. All industrial shop fire protection is based on the use of aqueous film forming foam (AFFF). Industrial wastewater is adversely impacted by AFFF in two ways; 1) it exerts a potential biochemical oxygen demand of approximately 20,000-35,000 mg/L, a very high strength wastewater that will severely damage FOTW operations, and 2) water based foams also create handling and mechanical hazards from foam piles and possible electrical shorts circuits. AFFF wastewater generated from spills, fire tests, building acceptance tests, false fire alarms, and real fire alarms may result in surges of high strength oxygen demanding wastewater within the industrial wastewater management system or may create foam piles that create other hazards. AFFF wastewater resulting from building acceptance tests has created the most difficult IWTP operation problems to date. An understanding of the fire protection systems at Whiteman AFB is necessary to characterize the greatest potential industrial wastewater system problems that may be experienced at the base.

Industrial wastewater handling problems that occur as a result of "foaming" are primarily managed at the influent structure to the FOTW with the addition of a foam control additive manufactured by G.S. Robins and Company. *DEFOAMER WAFB* has proven to be a very effective additive for control of AFFF foaming. *DEFOAMER WAFB* is composed of eighty-percent mineral seal oil and twenty- percent alkylphenol ethoxylate and works as a foam suppressant by increased surface tension. A copy of the MSDS sheet for *DEFOAMER WAFB* is included as Appendix 4. When the IWTP is operated, foaming problems are suppressed with a foam control additive manufactured by NalCo. No foam control system is in place at the confluence of the industrial wastewater system with the sanitary sewer.

Two brands of three percent AFFF are used for fire fighting at Whiteman AFB, 3M and Ansil. Both brands have similar, if not identical chemical and wastewater characteristics. Currently, only 3M product FC-203CF Light Water AFFF is purchased by the Whiteman AFB fire department. Manufacturer's Environmental Data information and Material Safety Data Sheets (MSDS) for FM-203CF are included in Appendix 5. The primary chemical ingredients of AFFF are water (approximately 70 percent), diethylene glycol butyl ether or DGBE (approximately 20 percent), amphoteric sulfate salt (< 5 percent), alkyl sulfate salt (< 5 percent), triethanolamine (< 1.5 percent), perfluoroalkyl sulfonate salt (< 1.5 percent), and tolyl triazole (< 1 percent). DGBE is identified as a toxic chemical. The chemical manufacturer recommended water exposure guideline is 35 mg/L. Prolonged or repeated over exposure may cause blood disorders, bone marrow depression, kidney effect, liver effects, and/or pulmonary edema. Inhalation and adsorption are the two primary human health pathways of exposure. According to the 3M Environmental Data Sheet a three percent solution of product FC-203CF in water exerts a BOD_5 of .35 g/g and a BOD_{20} of .72g/g or 34,900 mg/L and 71,953 mg/L of oxygen demand respectively.

The basic fire protection system at Whiteman AFB consists of an alarm, AFFF storage tanks, water supply, AFFF makeup/mixing manifold, fire water supply pumps, fire water distribution lines and spray nozzles or delivery mechanism. There are six individual fire protection systems located in the flight line area. Each of the six fire protection systems is similar, but differs in size, alarm type, and spray distribution system. Each fire protection system has one or more raw AFFF storage tanks used for in-line makeup of firewater. At least two fire pumps charge four of the individual fire protection systems. Two of the fire protection systems are charged with domestic water pressure. Water is mixed with raw AFFF through a positive pressure manifold and in-line static mixer for all systems (See Figure 9).

Figure 9: Fire Protection System #1 AFFF firewater makeup manifold.

Each storage tank is currently filled with raw three percent AFFF, the bulk AFFF product mixture that is diluted with water through the manifold system with three parts AFF to ninety seven parts fresh water to provide fire protection foam. All six fire alarm systems incorporate the use of "thermister" cable, a temperature sensitive fire alarm detection wire. The overhead deluge fire protection lines of all Whiteman AFB fire protection systems is actuated by "thermister" cable detection alarms. All B-2 underwing deluge fire protection systems are actuated by ultra-violet/infrared detection sensors. The fire alarm systems at all B-2 facilities and buildings, also use 10 remote video cameras (See Figure 10) in each hangar for fire confirmation of fire alarms. A seventeen-second-response time exists for the fire alarm attendant to manually override actuation of a fire protection system at B-2 facilities in case of a false alarm. Table 5 provides basic technical information concerning each fire protection system at Whiteman AFB.

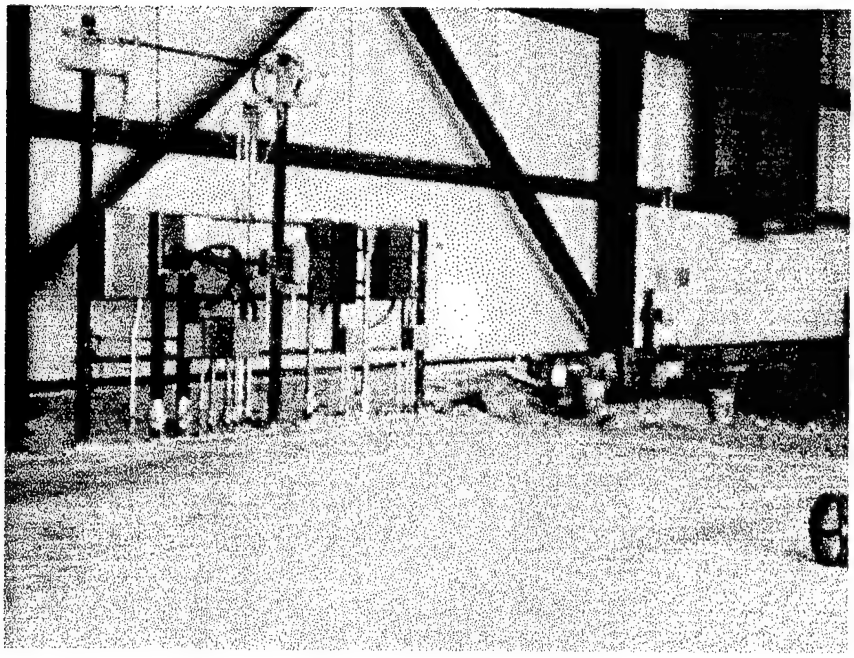


Figure 10: Mounting brackets for the B-2 hangar fire protection tele-video monitors are shown.

Table 5: Whiteman AFB Fire Protection Information Sheet

System #	Description	AFFF Tank Cap. Gal.	Alarm Type	# Fire Pumps	Fire Pump Rate	Est. Max. Fire H_2O Production
1	Corrosion/Control, Hangar 9, BRA	10,000	T/V/uv-ir	4	2,500	333,000
2	B-2 Docks	3,000	T/V/uv-ir	-	-	100,000
3	T-38, Helicopter Hangar	800	T	0	Unk.	26,600
4	A-10 Hangars (5 bay)	1,200	T	4	1,500	39,600
5	Refueler Maintenance	800	T/V/uv-ir	1	Unk.	26,600
6	A-10 Hangar (3bay)	700	T	0	Unk.	23,300

A review of Table 5 indicates the largest volume of AFFF wastewater that could be discharged to the industrial wastewater sewer resulting from an individual fire is 333,000 gallons of dilute fire water, plus the foam generated by fire trucks, and the rinse water generated from cleanup. An AFFF release of this magnitude would generate a five-day biochemical oxygen demand load of approximately 96,924 pounds and a twenty-day biochemical oxygen demand of approximately 199,829 pounds. Since the FOTW is designed to treat a maximum capacity of 5,000 pounds BOD_5/day, a worst case AFFF discharge event would result in a major NPDES permit violation unless the AFFF industrial wastewater is diverted to the 250,000 gallon AFFF storage tank and the 150,000 gallon IWTP equalization basin. Provided AFFF wastewater is diverted to these temporary storage facilities during a worst case event, NPDES compliance

should be maintained as long as the stored wastewater is not diverted to the FOTW at greater than approximately 2,000 pounds per day or about 5 gpm. Approximately fifty days of FOTW operation is required to work off a worst case AFFF discharge event and maintain compliance. If a greater safety factor is required by the Air Force, larger AFFF storage facilities are needed. Current AFFF wastewater storage capacity provides for an approximate twenty percent or 67,000 gallon reserve buffer of additional AFFF wastewater to store fire truck and clean up wastewater for a single worst case event.

3.7 Jet Fuel Storage and Distribution

There are four fuel storage tanks located in the vicinity of the flight line at Whiteman AFB. Each of the four fuel tanks has a capacity of 10,000 bbls. or 420,000 gallons. Each tank is surrounded by a spill prevention, control, and countermeasures (SPCC) concrete lined retention levee to prevent unauthorized wastewater discharges to the storm or industrial wastewater collection system. Each SPCC levee retains 120 percent of the tank capacity and a manual diversion valve that can route retained wastewater to either the storm or industrial wastewater collection system controls discharges. Sampling and laboratory testing determines the appropriate course of wastewater disposal from these retention areas. There is a very low probability for a significant release of fuel from the four fuel storage tanks beyond the SPCC levees.

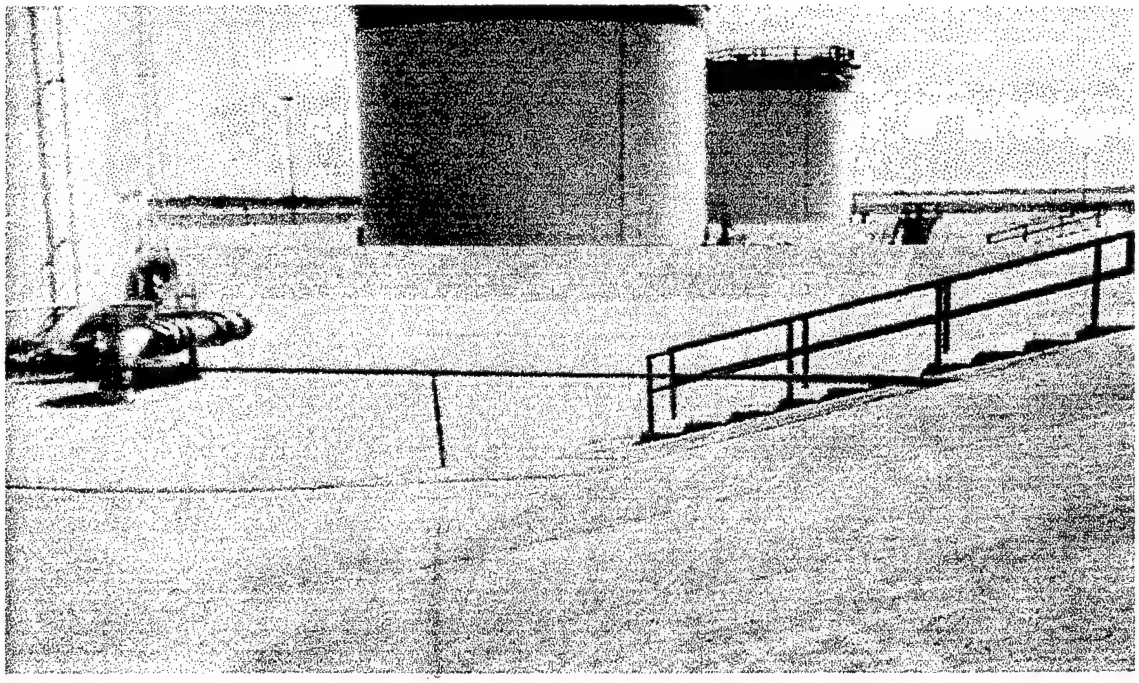


Figure 11: 10, 000 bbl. jet fuel storage tanks. Note wastewater diversion drain in background of the second levee.

Moderate size (500 to 5,000 gallons) fuel spills and leaks resulting from the distribution, loading and unloading of jet fuel represent a serious potential threat to the industrial wastewater management system. Jet fuel is pumped from the four storage tanks through a series of fuel distribution lines throughout the flight line. Numerous fuel hydrants are also located in underground pits throughout the flight line, especially within the B-2 dock area. Fuel spills from fueling and refueling planes are probably a less common source of petroleum releases than leaks. The coefficient of expansion for JP-8 is 75 psi/°F, consequently a temperature change of a few degrees exerts great stress on jet fuel distribution at pipe joints and pipe bends. It is believed that the greatest stress for leaks occurs within the fuel hydrants and pits on days when the temperature difference between ambient subsurface ground temperature and ambient air temperature is the greatest.

Nine significant fuel spills have been reported to the Fire Chief in the nine months proceeding March 1997. Other significant fuel spills or leaks are suspected to have occurred, but have apparently been unreported. Some unreported spills have been indicated by occasional slugs of petroleum and oil and grease in the raw influent to the FOTW.

SECTION 4

INDUSTRIAL WASTEWATER SYSTEM OPERATION/PROBLEM ANALYSIS, SAMPLE DATA, and OBSERVATIONS

This section of the report presents sample data and observations obtained during the March/April 1997 Industrial Wastewater System Characterization Survey (IWSCS) and provide an analysis of the industrial wastewater system operations and problems. In order to simplify results and conclusions, this section of the report is divided into three parts. Section 4.1 provides information concerning sample collection locations and identifies the various industrial shops and wastewater contributors monitored at each sample location site. Section 4.2 presents the sample data and provides an analysis of the data by sample location. The final section, 4.3, provides an analysis of the IWSCS observations, information and sample data as it relates to the fire protection and jet fuel distribution systems.

4.1 Sample Site Locations and Industrial Wastewater Contributors

Figure 12 is a general schematic (not drawn to scale) depicting the relative location of the industrial maintenance and flight operation support shops in the flight line vicinity of Whiteman AFB.

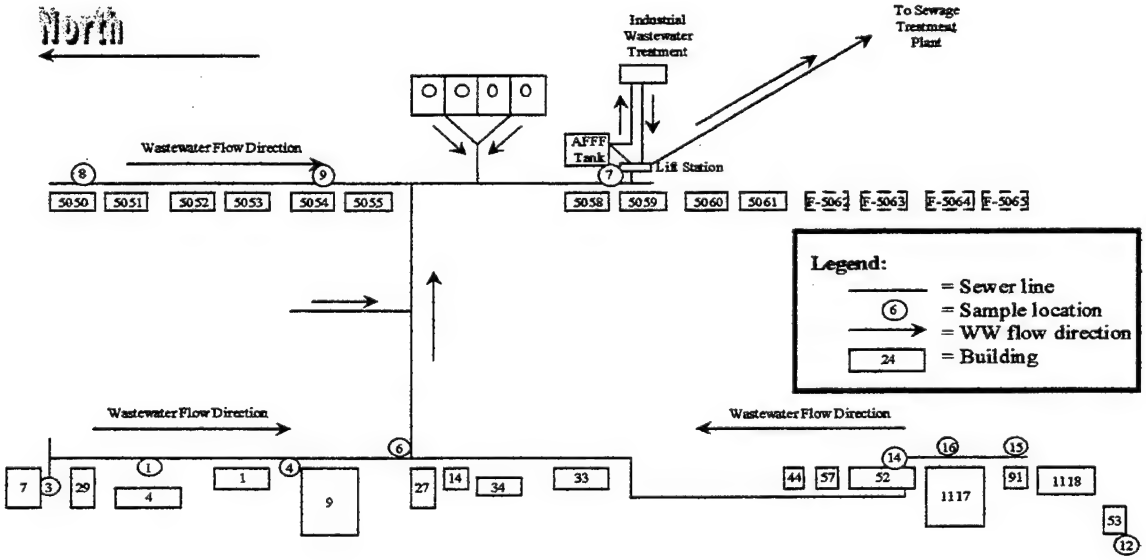


Figure 12. Industrial Sewer and Shops and Sampling Locations

A general description and key of the industrial shops associated with each location building number identified on Figure 12 are presented in Table 6. Also identified on the figure is the location of eighteen sample collection points utilized during the IWSCS. Figure 13 groups each sample collection location into a category or group that; 1) visually identifies the industrial activity with a sample collection location, 2) groups the industrial activity with other industrial shops and flight operations that are also monitored by samples collected at a common location, and 3) identifies sample collection locations that monitored a confluence of industrial waste streams throughout the survey period.

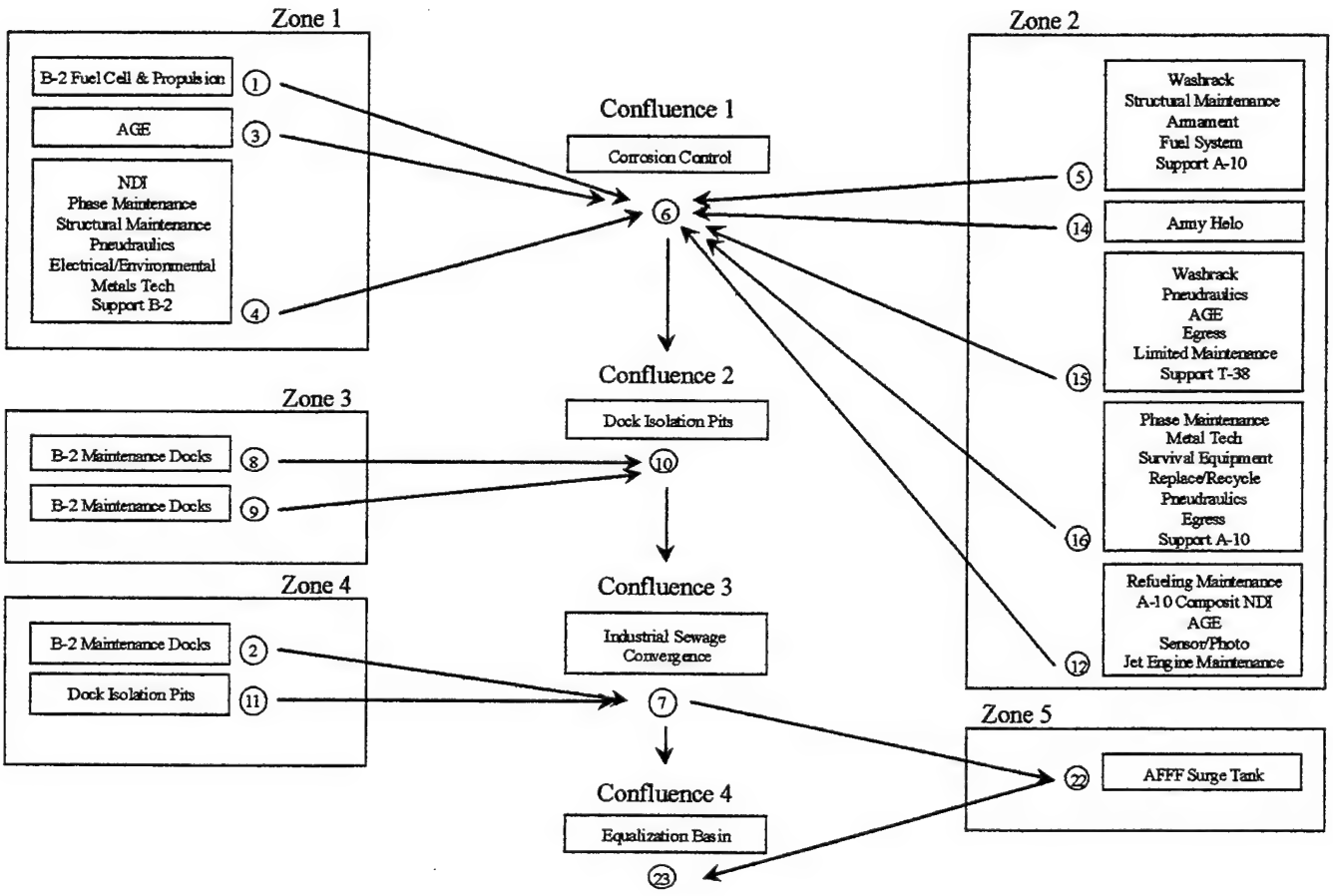


Figure 13: Simplified Shop/Wastewater Flow Diagram

Twenty-four hour composite samples or representative grab samples were collected from each sample location identified in Figure 13. Table 6 provides additional information associating the individual sample site location with the building number, other industrial shops common to the monitoring point and sample collection frequency.

Table 6: Whiteman AFB Sample Location Information			
Site #	**Building/Description**	**Associated Industrial Shops**	**Sample Frequency**
1	1	B-2 fuel cell	dry
2	5056 & 5067	B-2 maintenance dock	1 day
3	7	Aircraft grounds equipment (AGE)	dry
4	9	Non-destructive investigation (NDI), phase, structural maintenance, pneudraulics, electrical, & metals tech support	4 days
5	118	A-10 aircraft wash rack, structural maintenance, armaments, fuel system support	3 days
6	27	B-2 corrosion control	8 days
7	5413	AFFF diversion, industrial wastewater convergence manhole	8 days
8	5050-5053	B-2 maintenance dock	3 days
9	5054-5055	B-2 maintenance dock	4 days
10	North Jet Drain	Service dock and isolation pits	4 days
11	South Jet Drain	Service dock and isolation pits	3 days
12	1125 &1119	A-10 refueling maintenance, A-10 composite NDI, AGE, photographic/sensor support, & jet engine maintenance	3 days
13	Site deleted* (Site 12)	See Site 12	N/A
14	52	Army helicopter limited maintenance hangar	dry
15	91	T-38 aircraft wash rack, pneudraulics, limited aircraft maintenance support, egress	2 days
16	1117	A-10 pneudraulics, phase, metals tech support, surveillance equipment	2 days
17-21	N/A	Sample site locations were assigned to blind QA/QC samples	N/A
22	5413	Raw industrial wastewater contained within the AFFF surge tank	grab
23	Equalization Basin	Raw industrial wastewater contained within the IWTP equalization basin	grab
* Sample site 13 sample objective was combined with sample location 12			

4.2 IWSCS Sample Data and Analysis

Appendix 3 provides the Armstrong Laboratory analytical data sheet for each sample collected as a part of the Whiteman AFB IWSCS. The authors intensively reviewed the data sheets and a simplified data table presenting the primary information necessary to characterize and understand the industrial wastewater system was prepared. The simplified data tabulation is provided as Table 7.

TABLE 7: March 1997: Whiteman Air Force Base, Missouri
Industrial Wastewater System Simplified Sample Data

Date	Location and Site #	Sample #	Flow gpm	COD mg/l	O&G mg/l	TPH mg/l	Ortho Phos. mg/l	Total Phos. mg/l	Surf. mg/l	Complex Organics mg/l	Strom. mg/l	Metals mg/l
	Site 1: Bldg. 1 B2 Fuel Cell		Dry									
03/28	Site 2: Bldg. 5056-5057 B2 Maintenance Dock	20497		1480	1152	1088	1.6	2.5	<1	TCE 5; BOE 8.16	.486	NSM
	Site 3: Bldg. 7 Aircraft Ground Equipment (AGE)		Dry									
03/21	Site 4: Building T9-NDI, Structural Maintenance, B2 Tech support	19184		65	6	5	<1	<1	NT	NT	.313	NSM
03/22	Site 4:	19168		202	15	9	<1	<1	17	N/A	.29	NSM
03/23	Site 4:	19174		123	51	16	<1	<1	4	N/A	.309	NSM
N/A	**Site 4: Avg. Data Values**	N/A		130	24	10	<1	<1	7	N/A	.304	NSM
03/21	Site 5: Building 1118-Washrack, Fuel System Support A-10	19161		36	5	3	3	3	<1	NT	.775	NSM
03/22	Site 5:	19165		423	4	2	8	14	<1	<.010	.547	NSM
03/23	Site 5:	19171		42	5	4	4	4	<1	<.010	.792	NSM
N/A	**Site 5: Avg. Data Values**	N/A		167	4.6	3	5	7	<1	<.010	.704	NSM
03/21	Site 6: Building 27-Corrosion Control	19164		375	70	38	<1	<1	NT	NT	.303	NSM
03/22	Site 6:	19167		176	8	4	<1	<1	29	<.010	.405	NSM
03/23	Site 6:	19173		76	18	10	<1	<1	<1	<.010	.304	NSM
03/24	Site 6:	19597		174	22	13	<1	<1	3	<.010	.316	NSM

Date	Location and Site #	Sample #	Flow gpm	COD mg/l	O&G mg/l	TPH mg/l	Ortho Phos. mg/l	Total Phos. mg/l	Surf. Mg/l	Complex Organics mg/l	Stron. mg/l	Metals mg/l
03/25	Site 6:	19797		126	8	<1	<1	<1	1.5	<.010	.300	NSM
03/26	Site 6:	20048		21	83	83	<1	<1	<1	<.010	.321	NSM
03/27	Site 6:	20311		<10	3	2	<1	<1	<1	<.010	.325	NSM
03/28	Site 6:	20465		660	3	3	1	2	<1	<.010	.408	NSM
N/A	**Site 6: Avg. Data Values**	N/A		202	27	19	<1	1	5	<.010	.335	NSM
03/21	Site 7: Building 5413 AFFF manhole	19162		65	8	6	<1	<1	39	<.010	.385	NSM
03/22	Site 7:	19166		302	16	16	3	3	9	<.010	.261	NSM
03/23	Site 7:	19172		NT	16	15	NT	NT	NT	<.010	NT	NSM
03/24	Site 7:	19598		74	5	5	1	1	1.5	<.010	.480	NSM
03/25	Site 7:	19792		66	14	13	2	4	1	TCE.006, m-Xylene .008, o-Xylene .005	.325	NSM
03/26	Site 7:	20049		NSR								NSM
03/27	Site 7:	20312		236	5	2	<1	<1	<1	<.010	.470	NSM
03/28	Site 7:	20486		31	13	6	<1	<1	<1	<.010	.397	NSM
N/A	**Site 7: Avg. Data Values**	N/A		129	11	9	1.42	1.8	9		386	NSM
03/21	Site 8: Bldg. 5050-5053 B2 Maintenance Docks	19163		1140	64	62	18	34	NT	<.010	.902	NSM
03/22	Site 8:	19169		308	42	4	11	11	<1	<.010	.655	NSM
03/23	Site 8:	19175		263	96	40	8	8	1.25	<.010	1.32	Zn-5;Cu-2.5, Al-20
03/25	Site 8:	19795		NT	696	690	NT	NT	NT	BIT	NT	NT
N/A	**Site 8: Avg. Data Values**	N/A		570	225	199	12	18	<1.25	<.010	563	
03/23	Site 9: Bldg. 5054-5055 B2 Maintenance Docks	19176		123	9	8	3	3	<1	<.010	1.470	NSM
03/25	Site 9:	19801		28	NT	NSR	1	1	<1	<.010	.761	NSM
03/26	Site 9:	20050		<10	1	1	3	3	<1	<.010	.628	NSM
03/27	Site 9:	20313		<10	2	2	<1	<1	<1	<.010	.768	NSM
N/A	**Site 9: Avg. Data Values**	N/A		<16	1.5	1.5	2	2	<1	<.010	.719	NSM

Date	Location and Site #	Sample #	Flow gpm	COD mg/l	O&G mg/l	TPH mg/l	Ortho Phos. mg/l	Total Phos. mg/l	Surf. Mg/l	Complex Organics mg/l	Stron. mg/l	Metals mg/l
03/25	Site 10: North Jet Drain	19793		<10	98	82	265	290	NT	<.100	.501	NSM
03/26	Site 10:	20054		CBC	25	23	<1	<1	<1	<.100	.415	NSM
03/27	Site 10:	20315		1290	56	54	<1	<1	1.5	Napthalene 76;	.510	NSM
03/28	Site 10:	20487		150	1497	1459	<1	<1	NT	<.50	.377	NSM
N/A	**Site 10: Avg. Data Value**	N/A		720	526	512	<1	<1	<1.25		434	NSM
03/26	Site 11: South Jet Drain	20055		<10	12	12	<1	<1	<1	<.010	.576	NSM
03/27	Site 11:	20316		<10	12	1	<1	<1	<1	<.010	.636	NSM
03/28	Site 11:	20489		11	10	<1	<1	<1	NT	NT	.669	
N/A	**Site 11: Avg. Data Value**	N/A		<10	10.6	<5	<1	<1	<1	<.010	**.627**	NSM
03/25	Site 12: Bldg. 1125 & 1119 Refueling Maintenance & A10 Composite Wing	19794		3680	98	82	265	290	NT	<.010	.347	Cu-4.2, Pb-2.0, Zn-6.5
03/26	Site 12:	20057		149	15	11	2	2	13	<.010	.391	NSM
03/27	Site 12	20314		65	7	7	2	2	NT	<.050	.349	NSM
03/28	Site 12:	20489		1030	224	208	<1	1.5	NT	<.050	.199	
N/A	**Site 12: Avg. Data Value**	N/A		1231	86	77	68	74	13	<050	.321	
03/24	Site 13:	19599		5320	70	2	130	198	8	NT	NT	Al-13.9, Ba-2.76, Cu-9.23, Pb-6.5, Zn-21
	Site 14: Bldg. 52 Army Helicopter Wing		Dry									
03/26	Site 15: Bldg. 91 T-38 Maintenance & Washrack	20051		262	230	19	1	1.2	460	<.100	5.170	NSM
03/27	Site 15:	20317		7200	NT	NT	<1	<1	330	NT	.404	NSM
N/A	**Site 15: Avg. Data Value**	N/A		3731	230	19	<1	<1.1	395	<.100	2.787	NSM

Date	Location and Site #	Sample #	Flow gpm	COD mg/l	O&G mg/l	TPH mg/l	Ortho Phos. mg/l	Total Phos. mg/l	Surf. Mg/l	Complex Organics mg/l	Stron. mg/l	Metals mg/l
03/26	Site 16: Bldg. 1117 A10 Support	20064		<10	1	1	<1	<1	NT	NT	.264	NSM
03/27	Site 16:	20318		<10	8	2	<1	<1	<.1	<.010	.286	NSM
03/28	Site 16:	20504		25	120	115	<1	<1	NT	NT	.178	NSM
N/A	**Site 16: Avg. Data Value**	N/A		15	43	39	<1	<1	<1	<.010	.243	NSM
03/28	Site 22: AFFF Surge Basin	20490		660	30	30	1.3	2.1	<1	TCE .065; BOE 26.5	.465	NSM
03/28	Site 23: IWTP Equalization Basin	20491		270	66	50	1	1	3.6	Ebz 8.3; Tol. 6.6; Xylene 25	.423	NSM
03/26	*Influent WWTP*	*20052*		*347*	*54*	*14*	*1.7*	*2.6*	*3.4*	*<.010*	*.319*	NSM
03/26	*Effluent WWTP*	*20053*		*13*	*1.68*	*1.52*	*1.6*	*1.9*	*<1*	*<.010*	*.297*	NSM
03/23	*Whiteman AFB Potable Water Supply*	*70220*		*<10*	*.5*	*.3*	*.2*	*.2*	*<1*	*<.010*	*.262*	NSM
03/23	*Reagent water*	*70221*		*<10*	*.3*	*<1*	*<1*	*<1*	*NT*	*<.010*	*<.005*	NSM

NT: not tested
N/A: not applicable
NSR: no sample received
BIT: broken in transit
NSM: no metals of significance

Chemistry data presented in Table 7 can be grouped or characterized as belonging in categories. Some categories are; oxygen demanding contaminants (chemical oxygen demand or COD), oil and petroleum contaminants (oil and grease, total petroleum hydrocarbons or TPH), detergents (ortho-phosphate, total phosphate, surfactants), complex organic contaminants (pesticides, volatile, and semi-volatile organic) and metal contaminants (strontium and other heavy metals). Analysis of the sample data presented in Table 7 and a discussion of the related IWSCS observations and pollution prevention opportunities are grouped and presented by the five Zones and four confluence points depicted in Figure 13.

Zone 1 and Confluence 1

Zone 1 is comprised of sample site locations 1, 3, and 4. No discharges were observed from buildings 1 and 7, the B-2 fuel cell or aircraft grounds equipment shops (sample site locations 1 and 3). All industrial wastewater sampled in this zone during the IWSCS was generated from building 9 (sample site location 4). Building 9 houses the non-destructive inspection, structural maintenance, pneudraulics, electrical instrument repair, and metals tech support shops supporting B-2 maintenance and flight operations. Twenty-four hour composite samples were collected on three consecutive days at sample location 4. Observed flow at the site was less than 1 gpm each day. No significant or unexpected industrial wastewater contamination was observed during the survey the sample location in Zone 1.

Closely associated with the Zone 1 shops, is the B-2 corrosion control shop at building 27. Twenty-four hour composite samples of the wastewater generated from building 27 were collected eight consecutive days at confluence 1. Two of the eight samples indicated excessive amounts of oil and grease were discharged to the industrial sewer. The pre-treatment limits for oil and grease at Whiteman AFB are 50 mg/L. Wastewater generated from building 27 on 21 March and 26 March exceeded the established pre-treatment limit by about fifty percent for those two days. No likely specific source of the oil and grease was identified as an element of the pollution prevention opportunity assessments conducted at building 27. Two possible scenarios that may have resulted in the oil and grease excursions are parts cleaning, possibly using excessive detergent or improper disposal of a few gallons of oily wastewater.

The industrial wastewater generated at building 27 and within Zone 1 generally presents no wastewater treatment challenges. Good pollution prevention practices observed at these sites during the IWSCS undoubtedly contributed to lack of industrial wastewater problems identified in these areas. The sample data indicate only occasional oil and grease excursions occur and they had only minor impact to the industrial wastewater.

Zone 2, Confluence 1 and 2

Samples collected within Zone 2 were obtained from sample site locations 5, 12, 14, 15, and 16. Zone 2 is comprised of the industrial maintenance shops flight operations located adjacent to the southwestern edge of the flight line. The shops within this area are generally associated with the tenant organizations at Whiteman AFB. Among the tenants are an A-10 wing and an Army helicopter squadron. T-38 aircraft maintenance and flight operations also are supported within this sector.

The industrial wastewater generated within Zone 2 presents the most serious routine industrial wastewater problems identified by the IWSCS. No industrial wastewater was observed to be generated from building 52 (Army helicopter maintenance), or sample location 14, during the survey. Sample location 14 was monitored daily, including weekends, and was always found to be dry. Maintenance and flight operations associated with the Army helicopter squadron had no impact on the industrial wastewater system during the course of the survey. Sample location 5 monitored discharges of industrial wastewater from building 1118. This sample point included wastewater generated from the A-10 wash rack, structural maintenance, armaments, and fuels system support shops. No problems are indicated by the chemical data collected during the 3 days this location was sampled. Sample locations 5 and 14 were the only sample points monitored within Zone 2 that did not indicate some routine problems with the management of industrial activities generating oxygen demanding contaminants, oil and grease, detergent or heavy metals.

Sample locations 12 and 15 had twenty-four hour composite samples collected. Flows were generally observed to be less than two gpm at these sample points. Analysis of observations and chemistry data related to each of these sample locations is presented separately.

Sample location 12 was selected to monitor industrial wastewater generated from the A-10 refueling maintenance activities conducted at building 1125. Industrial wastewater generated from the building 1119 industrial shops was also monitored at this sample point. Chemical data collected on five consecutive (Sample 19599 became sample location 12) dates indicate serious industrial wastewater problems occur as a result of the industrial maintenance and flight operations activities in this area. The data is presented in Table 8. Average data values for Chemical Oxygen Demand were 1,231 mg/L,

Table 8: Sample Site 12 Simplified Data Table

Date	Sam. #	COD mg/L	O&G mg/L	TPH mg/L	O-phos. mg/L	T-phos. mg/L	Surf. mg/L	Organics mg/L	Metals mg/L
03/25	19794	3680	98	82	265	290	NT	<.01	
03/26	20057	149	15	11	2	2	13	<.05	
03/27	20314	65	7	7	2	2	NT	<.05	
03/28	20489	1030	224	208	<1	1.5	NT	<.05	
Avg.		1231	86	77	68	74	13	<.05	
03/24	19599	5320	70	2	130	198	8	NT	

or five times stronger than normal industrial wastewater generated at Whiteman AFB during the survey. Oil and grease sample concentrations were as high as 224 mg/L and were consistently measured at levels higher than the allowable pre-treatment limit of 50 mg/L. Chemical data indicating the presence of detergents (e.g., ortho-phosphate, total phosphate, surfactants) also inferred that excessive oil and grease in composite samples collected 25 and 28 March may have been related to emulsions formed from the use of soaps. Ortho - phosphate concentrations in samples ranged from a low of <1 mg/L to 265 mg/L and correlated to high oil and grease concentrations in the samples. It is likely that cleaning operations (buildings 1125 and 1119) generating the industrial wastewater at these times used excessive amounts of soap. Use of excessive soap then emulsified oil and grease from grease traps or oil/water separators.

An observation made by the IWSCS field team also identified an operation and maintenance problem with the oil/water separator at building 1125 that certainly contributed to the oil and grease sample results obtained at sample location 12. Building 1125 supports the maintenance and operations of the refueling maintenance group. Refueling vehicles are maintained and refueling flight operations are supported by the work activities performed here. Industrial wastewater pre-treatment facilities include an oil/water separator, an above ground slop oil storage tank and an underground, 30,000 gallon capacity, AFFF surge tank. The underground oil/water separator at this facility contains two non-submersible motors that drive a slop oil lift pump and a flow diversion valve. Storm water intermittently drains into two sumps that contain the motors, occasionally submerging them and creating electrical short circuits that damage the equipment. This results in an oil build-up within the oil/water separator that eventually overloads the oil removal capacity of the separator and consequently causes industrial wastewater discharges to exceed the pre-treatment limits. Additionally, the above ground slop oil storage tank has a valve/drain plumbed to the 30,000 gallon AFFF surge tank to decant water. This valve configuration can result in a discharge of removed oil and grease back into the industrial wastewater system and should be corrected.

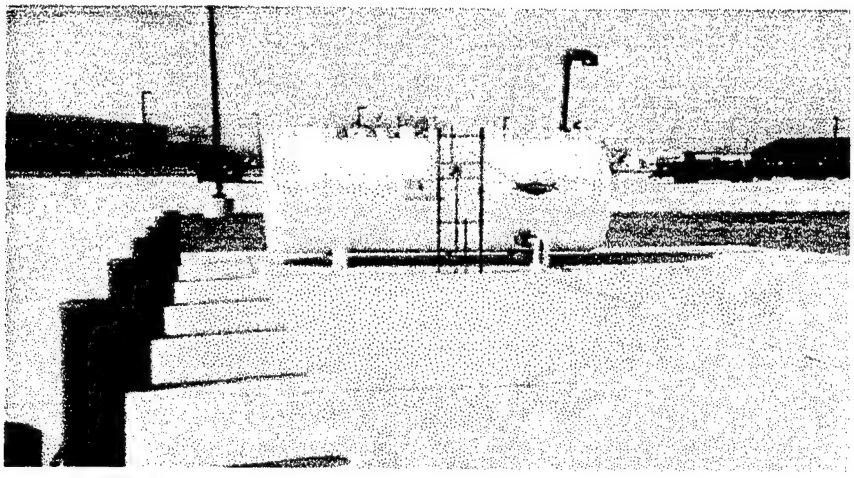


Figure 14: The building 1125 oil/water separator slop oil tank. Note the manual valve drained to the 30,000 gallon underground AFFF surge tank

In addition to sample locations 5, 12, and 14, industrial wastewater samples were also collected at sites 15 and 16 in Zone 2. Industrial wastewater sampled at these locations was generated from building 91 and building 1117, respectively. Samples collected from

Table 9: Sample Site 15 and 16 Simplified Data Table

Date	Site #	Sam. #	COD mg/L	O&G mg/L	TPH mg/L	Complex Organics mg/L	Strontium mg/L	Other mg/L
03/26	15	20051	262	230	19	TCE .0095	5.170	Al, Fe, Ni, Zn; Surf
03/27	15	20317	7200	NT	NT	N T	.404	Phenol & Surf.
Average	15	N/A	3731	230	19	<.100	2.787	
03/26	16	20064	<10	1	1	NT	.264	
03/27	16	20318	<10	8	2	<.01	.286	
03/28	16	20504	25	120	115	NT	.178	
Average	16	N/A	15	43	39	<.01	.243	

site 15 is generated primarily by activities that support T-38 flight operations. Samples collected from site 16 are generated primarily by activities that support A-10 flight operations. Table 9 is a simplified presentation of the relevant chemistry data needed to assess industrial wastewater problems from these sample locations. A single oil and grease excursion above the Whiteman AFB pre-treatment limit was identified at sample location 16. Analysis of the data indicates the 120 mg/L oil and grease determination on 28 March may be due to disposal of a minor amount (<1 quart) of oil and grease through a drain. Chemistry data obtained from samples collected at site 15 indicate more serious problems.

Chemistry data for the two composite samples collected at site 15 indicate serious industrial wastewater problems. The highest value of chemical oxygen demanding contaminants was sampled here. High concentrations of oil and grease were detected on 26 March and visible volumes of oil and grease contained within the sample collected 27 March precluded testing for oil and grease. The presence of large amounts of surfactant in both composite samples indicate intensive use of detergents and cleaners associated with the T-38 maintenance and wash rack operations conducted at building 91. Detection of .0095 mg/L trichloroethene in sample 20051 may also indicate that hazardous materials are not properly disposed at this facility. Also, the detection of 5.17 mg/L strontium and significant concentrations of aluminum, iron, nickel and zinc indicate maintenance activities may occur that could result in exceeding recommended personal exposure limits (PEL) by aircraft maintenance workers and industrial wastewater system maintenance personnel.

All industrial wastewater generated within Zone 1 eventually flows to the B-2 corrosion control manhole (sample site 6). At this point, Zone 2 industrial wastewater converges with Zone 1 industrial wastewater and then flows east towards the B-2 fuel dock isolation pits. The high average contaminant (COD, O&G, & TPH) concentrations identified in composite samples collected at site 10 indicate that the values are most likely related to the industrial wastewater flow generated from Zone 2. Some fuel contamination at site 10 is also likely a result of a fuel hydrant leak detected during the IWSCS.

Zone 3 and Confluence 2

Zone 3 includes sample sites 8 and 9, which are manholes that collect industrial wastewater generated from the B-2 maintenance docks located within the northeast section of the Whiteman AFB flight line. Sample site 8 received industrial wastewater from maintenance docks 5050 and 5051 and sample site 9 received industrial wastewater from maintenance docks 5052, 5053, 5054, and 5055. Twenty-four hour composite samples were collected at both sample sites 8 and 9 on four consecutive days. Samples were collected from site 8 on 21, 22, 23, and 25 March. Samples were collected from site 9 on 23, 25, 26, and 27 March. Flow from both sample sites was very low each sampling day, always < 1 gpm. The small volumes of industrial wastewater generated from the northeast maintenance docks must be factored into the analysis of contaminant impact on the Whiteman AFB industrial wastewater system.

Analysis of chemistry data collected from site 8 indicates that the maintenance activities generated small volumes of moderate strength industrial wastewater. Excessive oil and grease and detergent contamination was found in each sample collected at site 8. Chemical oxygen demand from site 8 wastewater was of greater strength than normally found in Whiteman AFB industrial wastewater. Average daily site 8 analyte values were; chemical oxygen demand-570 mg/L, oil and grease-225 mg/L, and detergents approximately 18 mg/L. The use of excessive detergents or floor washing may be responsible for oil and grease contamination. Two elevated strontium values also occurred at site 8. On 21 March, .902 mg/L strontium was detected and on 23 March, 1.32 mg/L was measured. Sufficient dilution of these values occurs within the industrial wastewater system to preclude a wastewater treatment problem, however undesirable exposure to strontium wastes may result from the type industrial or maintenance activity that occurred in building 5050 and 5051 on 21 and 23 March.

No unexpected contamination was identified in samples collected at site 9. Strontium was found to be 1.47 mg/L in a sample collected 23 March. However later samples fell below a value of < .76 mg/L. Average sample values varied in a range from <.760 mg/L to .400 mg/L.

Industrial wastewater flow from sample sites 8 and 9 converge at sample site 10 with industrial wastewater from the western flight line area before flowing south to confluence 3. Samples collected at site 10 contained visible oil and grease most days. Visible indications of oil increased each day sampled. A significant increase in the amount of visual oil occurred on 28 March. The field team reported this observation to Tim Alm of the Refueling Maintenance. A nearby underground B-2 fuel hydrant nearby was pressure tested and found to be leaking. The hydrant was then repaired and serviced.

Zone 4 and Confluence 3

Sample sites 2 and 11 are located within Zone 4. No unusual or unexpected contaminants were identified in the three composite samples collected at site 11.

Only one composite sample was collected at site 2. It was collected on 28 March. The site 2 sample contained fuel. Contaminant concentrations were; chemical oxygen demand-1,480 mg/L, oil and grease 1152 mg/L, total petroleum hydrocarbon 1,088 mg/L. Some detergents were also present in the sample. Trichloroethene and 2(2-Butoxyetoxy)ethanol, the primary component of AFFF was also identified. No explanation is offered by the authors as to the cause of contamination found at site 2, however since no similar contamination was identified in the site 11 composite samples this may be an isolated event. Contractor related activities or a minor fuel spill treated with AFFF, might also be responsible for the irregularity.

Industrial wastewater from site 2 and site 11 converges with the main industrial sewage collection line just prior to sample site 7, the AFFF diversion and industrial wastewater confluence manhole. Twenty-four hour composite samples of Site 7 were collected for eight consecutive days. Chemistry data obtained from these samples present the most accurate picture of normal daily industrial wastewater characteristics. A simplified data summary table of the chemistry results is presented below for site 7.

Table 10: Sample Site 7 Simplified Data Table

Date	Sam. #	COD mg/L	O&G mg/L	TPH mg/L	O-phos. mg/L	T-phos. mg/L	Surf. mg/L	Organics mg/L	Metals mg/L
03/21	19162	65	8	6	<1	<1	39	<.010	
03/22	19166	302	16	16	3	3	9	<.010	
03/23	19172	NT	15	15	NT	NT	NT	<.010	
03/24	19598	74	5	5	1.5	1	1.5	<.010	
03/25	19792	66	14	13	1	4	1	<.010	
03/26	20049	NSR							
03/27	20312	236	5	2	<1	<1	<1	<.010	
03/28	20486	31	13	6	<1	<1	<1	<.010	
Avg.	N/A	129	11	9	1.42	1.8	9	<.010	

Analysis of the analytical data obtained from site 7 indicates that industrial wastewater at Whiteman AFB is uniform in nature and of relatively weak strength when compared to industrial wastewater generated from major commercial airport facilities. The chemical oxygen demand and oil and grease concentrations found in samples at site 7 were less than the strength normally found in domestic sewage. Similar results were found for detergents and complex organic contaminants. No unusual or unexpected heavy metals contamination was identified in any of the site 7 samples. The data indicate that normal industrial wastewater generated at Whiteman AFB does not present a problem for treatment at the

FOTW. The data also indicate that under normal conditions there is no need to operate the IWTP for treatment of industrial wastewater.

Zone 5 and Fire Protection Systems

Zone 5 is the industrial wastewater AFFF surge basin, which is also sample site 22. In the event of a fire alarm the IWTP/sanitary sewer lift station is designed to automatically shut down. If a fire alarm occurs, the system is designed for industrial wastewater and fire protection water to gravity flow to the manhole at sample site 7, until approximately 3 feet of head is overcome due to shut down of the IWTP/sanitary sewer lift station. At that point, the combined wastewater will gravity flow through a pipe to the 250,000 gallon AFFF surge tank. Wastewater contained within the AFFF tank must be pumped to the IWTP effluent lift station where it is diverted to the 150,000 gallon equalization basin for treatment at the IWTP or pumped to a wet well and lift station that primes a sanitary sewer force (pressurized) trunk line. The result of this configuration is a combined AFFF surge tank/IWTP equalization basin industrial wastewater/fire water total system surge capacity of approximately 400,000 gallons. 400,000 gallons is sufficient retention capacity for combined firewater/industrial wastewater flow for a single worst-case fire event. Such an event would generate approximately 333,000 gallons AFFF fire protection water, fire truck AFFF (estimated < 35,000 gallons), an unknown quantity of clean up water, and normal daily industrial wastewater flow (estimated < 10,000 gpd). It seems reasonable that sufficient industrial wastewater surge capacity exists for a one-time event.

Other situations are known to occur at Whiteman AFB that might also impact the normal available firewater/industrial wastewater flow surge capacity. Seven systematic events occur that could exceed or bypass the industrial wastewater system surge capacity. These events are:

- ***Bi-annual testing*** of the individual fire protection systems to ensure compliance with National Fire Protection Standard 25 (NFPA 25).
- ***Acceptance testing*** (fire protection system demonstration test is required by contract) of a B-2 maintenance dock or hangar.
- ***Multiple fire events***
- ***Diversion of industrial wastewater to the AFFF surge tank*** or equalization basin for treatment at the IWTP or waste load leveling and control at the FOTW.
- ***Submergence of the AFFF surge tank*** manway entrances by storm water.

- ***A fire alarm system failure*** to automatically or manually divert fire protection wastewater to the AFFF surge system.

- ***Any combination of the above events***

A short description and discussion of historical issues and information concerning the events that could damage or result in exceeding the industrial wastewater system surge capacity is provided below:

- ***NFPA 25 fire protection testing***: NFPA 25 compliance testing is conducted every two years on all fire protection systems at Whiteman AFB. The plumbing shop of the CES is responsible for the testing and normally coordinates this effort with the fire protection squadron. A single NFPA 25 test does not normally discharge more than 5 percent of the available firewater from any fire protection system. However, cumulative tests conducted on consecutive days could temporarily reduce the available AFFF/industrial wastewater surge capacity significantly.

- ***Acceptance testing*** (fire protection system demonstration test is required by contract) of a B-2 maintenance dock or hangar: B-2 maintenance hangars constructed during the early phases of the B-2 program experienced difficulties in meeting the requirements of fire protection acceptance tests. Each test could result in the generation of 100,000 to 150,000 gallons of AFFF fire protection wastewater. In the past, these tests were often performed five or six times at each new hangar, Usually the tests were performed within one to two weeks of each preceding test before the contract requirements were met. Acceptance testing has improved and become more efficient, however wastewater generated form these activities has resulted in NPDES compliance and operation problems with both the IWTP and the FOTW. Only two B-2 hangars are currently incomplete and still require acceptance testing.

- ***Multiple fire events***: Determination of the probability of multiple fire events occurring simultaneously or sequentially is not within the scope of this report, however, the possibility exists for such an event. This report used computations of waste loads and system capacities that were calculated using single event/worst case assumptions. Multiple or sequential fire events could create hydraulic demands for AFFF/industrial wastewater surge capacity than those estimated.

- ***Diversion of industrial wastewater*** to the AFFF surge system or equalization basin: Industrial wastewater has been diverted to the AFFF surge system many times in the past. Diversion of industrial wastewater

to this system reduces the system surge capacity temporarily by a like volume. Industrial wastewater diversion will occur again (most likely during summer periods) in order to control wastewater loads upon the FOTW.

- ***Submergence of the AFFF surge tank***: Entrance to the AFFF surge tank is not water proof. Major storm events frequently generate sufficient volumes of storm water to submerge the AFFF surge tank area (See Figure 15). Surge capacity is reduced during these periods and the FOTW is more vulnerable to damage from a fire protection event in these periods.

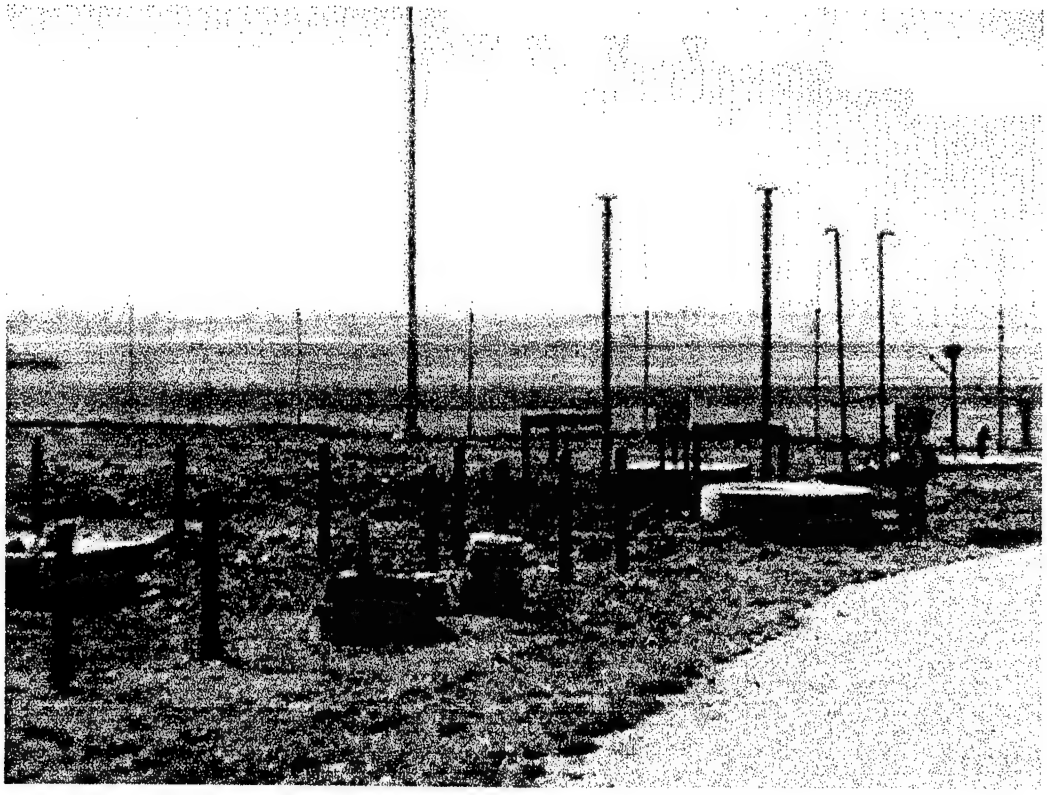


Figure 15: This photograph is of sample site 7 (note reflector cone). The vents in the background background are associated with oil/water separator. The control panel of the lift station and an AFFF surge tank manway are also visible in the photo. Note that storm drainage slope to this general area.

- ***Fire alarm system failure*** to divert fire protection wastewater: The fire alarm system was designed to actuate shut down of the primary industrial wastewater lift station near the AFFF surge tank in order to divert fire protection wastewater to the AFFF surge tank. The telemetry of the system is damaged and requires repair to function properly. Currently,

industrial and fire protection wastewater must be diverted to the AFFF surge tank manually in the event of a fire protection event.

- ***Any combination of the above events***: Combination of any of these events will act both cumulatively to reduce AFFF fire protection/industrial wastewater surge capacity.

A single grab sample of wastewater was collected from the AFFF surge tank or site 22 on 28 March. Chemical oxygen demand, oil and grease, total petroleum hydrocarbon concentrations were elevated above normal Whiteman AFB generated industrial wastewater. 2-2(butoxyetoxy)ethanol or BOE, the primary component of AFFF, was also found in the sample. The BOE concentration was 26.2 mg/L or about .0026 of one percent. A standard AFFF solution would contain about .6 of one percent BOE or roughly 230 times more BOE than concentrated in sample 20490. If agitated the site 22 industrial wastewater would result in minimal foaming problems. No significant threat would be presented to operation of the FOTW or to NPDES compliance by discharge of the 28 March AFFF wastewater to the domestic sewer for treatment at the FOTW,

Confluence 4 and the Jet Fuel Distribution System

Confluence 4 is the IWTP equalization basin or sample site 23. Industrial wastewater contained in the equalization basin normally flows through sample site 7, then through a buried 100 gpm type B oil/water separator (OWS #5413), and finally the industrial wastewater is pumped from a 250 gpm lift station. When the diversion valve to the sanitary sewer is closed, industrial wastewater is discharged to the IWTP equalization basin or site 23.

A secondary industrial wastewater flow route to the IWTP equalization tank exists. This flow route is through the AFFF diversion pipe at sample site 7, through the AFFF surge tank, through the AFFF lift pump to the IWTP effluent wet well, and then through the effluent lift pumps and a manual flow diversion valve to the equalization basin.

Samples collected from the IWTP equalization basin exhibit the characteristics of normal Whiteman AFB industrial wastewater except for a 66 mg/L concentration of oil and grease. The elevated oil and grease value was not unexpected, since the main industrial wastewater lift pump immediately following OWS #5413 has a constant rate capacity of 250 gpm that exceeds the design flow of the oil/water separator by a factor of 2.5. The basic design of the equalization basin will also tend to concentrate floating oil and grease. The materials of construction (e.g., concrete), size of the equalization tank, its nature to accumulate oil and grease that precludes free oxygen exchange, and the potential accumulation of wastewater that may contain significant oxygen demanding contaminants creates a potentially hazardous situation for IWTP workers. Oxygen devoid atmospheres that are both corrosive and

potentially explosive may occur within this tank. Toxic gases (e.g., H_2S) may also be contained with in the tank.

The design purpose of OWS # 5413 was to provide the primary oil and grease removal capability for the industrial wastewater system before discharge to either the sanitary sewer system or IWTP. At least three problems prevent the unit from achieving that purpose. They are:

- OWS hydraulic flow limits of 100 gpm and hydraulic demand of >250 gpm at the lift station
- underground construction and burial depth >30 feet
- lack of a defoamer system

No adequate fuel or oil spill removal capability presently exists to manage spills or fuel leaks. An example of this difficulty is no practical capability to remove fuel entering the industrial wastewater system from the observed fuel hydrant leak near sample site 10. The only operational fuel/oil removal management capability that exists within the entire wastewater treatment system is the primary clarifier at the FOTW. Prevention of fuel spills and detection of fuel leaks are critical to maintaining compliance with the Whiteman AFB oil and grease pretreatment requirements.

SECTION 5

CONCLUSIONS and RECOMMENDATIONS

5.1 Conclusions

The Whiteman AFB industrial wastewater system is a complex network that addresses dynamic problems. The general character of the industrial wastewater generated and sampled at Whiteman AFB during the survey is; small to very moderate flow rates (estimated 10-30 gpm), low strength or very small organic waste loads, and normally uniform in nature. The conclusions and recommendations associated with this network are best presented as groups of related and interdependent problems. For purposes of this report the industrial wastewater system problems are addressed as related to either:

- General characteristics of the industrial wastewater system,
- Fire fighting systems,
- Fuel storage/distribution system,
- B2 mission support,
- Tenant wing support, or
- Industrial wastewater treatment plant and management system

With respect to each of the above areas, conclusions have been identified. The conclusions are as follows:

General Characteristics of the Industrial Wastewater System

- Industrial wastewater flow at Whiteman AFB is extremely low (< 10 gpm) during normal operations.
- Samples collected during the survey indicate no routine industrial wastewater contamination occurs from the use of chlorinated or complex organic chemicals.
- Generally the strength of the industrial wastewater generated at Whiteman AFB is less than that of domestic sewage.
- The industrial wastewater survey was conducted during a dry period and provides a very accurate assessment of the real industrial wastewater issues.
- Survey samples are believed to be the most representative possible and reflect the full strength industrial wastewater normally generated at Whiteman AFB.
- Also, no indication of the presence or absence of infiltration within the industrial wastewater collection system can be inferred from the survey results.

Fire Fighting Systems

- The most likely cause of past and future hydraulic surges of industrial wastewater are either a fire alarm (false or real) or a test of the fire fighting systems themselves.
- Large volumes (>330,000 gallons) of industrial wastewater generated by one of the five separate fire fighting systems represent the single most serious threat to the successful operation of the industrial and sanitary wastewater treatment systems, as well as a likely cause of non-compliance with the NPDES Permit requirements.
- Many of the past operational problems experienced at the Whiteman AFB IWTP are related to fire alarms and tests of the fire fighting systems.
- An industrial wastewater system surge capacity of approximately 400,000 gallons is required to manage the worst case hydraulic/organic loading industrial wastewater system problem for a single fire alarm or fire test event.

Fuel Storage/Distribution Systems

- Spills or leaks of jet fuel to the industrial wastewater collection system represent a threat to proper operation of the industrial and sanitary wastewater treatment systems.
- Numerous small spills and leaks of jet fuel to the industrial wastewater collection system have caused some past operational problems at the IWTP.
- A common cause of oil and grease discharges to the industrial wastewater collection system is due to excessive use of soaps or surfactants when washing and maintaining aircraft.
- In general, operation and maintenance of spill control and containment facilities is effective.
- A fuel leak was identified during the IWSCS at an underground fuel hydrant near the blast shield and north jet drain manhole (site 10). A leak was suspected in the area as a result of field observations made by the AL/OEB field team. Modification of the standard fuel distribution line test by the CEV/fuels group confirmed the suspected source of the fuel.

B2 Mission Support and B2 Operations

- With the exception of activities that occurred at corrosion control, the site 8 maintenance docks, the site 2 maintenance docks and the blast shield/north jet drain area, the B2 mission support activities and B2 operations had a minimal impact upon the character, volume and nature of the industrial wastewater generated during the industrial wastewater characterization survey.
- Sample data indicated that sample site 2 (buildings 5056-5057) maintenance nose docks released fuel and organic wastes and solvents to the industrial sewer on 28 March 1997. Analysis of the data indicates the event was likely due to improper or unauthorized disposal of fuel and hazardous materials to the sewer.

- Review of the sample site 6 data collected from the (building 27) Corrosion Control area identified a routine problem involving the release of oil and grease.
- Information derived at the sample site 8 (buildings 5050-5053) B2 maintenance docks identified recurring releases of oil and grease. Sample data indicate the cause of the oil and grease release is likely related to the use of excessive or inappropriate soaps during routine maintenance activities (suspect floor washing).

Tenant Wing Support and Operations

The most serious routinely recurring activities that adversely impact the character of industrial wastewater generated at Whiteman AFB results from tenant facilities and the refueling maintenance at building 1125.

- Samples collected and analyzed during the industrial wastewater characterization survey indicate that Tenant Wing operations and support have the most significant adverse impact on the nature and quality of routine industrial wastewater.
- Industrial wastewater collected at sample site 12 and flowing from (buildings 1125 and 1119) the A10 Composite Wing and Refueling Maintenance Squadron generate excessively strong industrial wastewater from routine operations. IWSCS observations and chemistry data indicate that pollution prevention activities should be considered for implementation at these buildings. Routine operational procedures that occur in these buildings should be reviewed and improved with respect to industrial wastewater management.
- Analytical data collected at Sample Site 15, (building 91) the T-38 maintenance and wash rack area, have problems similar to those noted at Sample Site 12. Chemistry data indicate the industrial wastewater management problems generated form this area are severe.

Industrial Wastewater Treatment Plant and Management System

- Normal industrial wastewater strength and flow is insufficient to justify continued operation of the Industrial Wastewater Treatment Plant.
- Analysis of the information obtained from this survey and information obtained as part of the *Whiteman AFB Industrial Wastewater Treatment Plant Characterization and Analysis, May 1997*, indicate that modifications to both the IWTP system and IWTP units need to be made.
- The IWTP equalization basin functions as an effective industrial wastewater surge protection unit, but is ineffective as a unit for normalization of industrial wastewater characteristics.

Recommendations

A number of Whiteman AFB wastewater management issues and questions can be resolved by using the information presented in this report. Recommendations designed to address general and specific issues frequently raised by Whiteman AFB and Air Combat Command environmental management personnel are framed as responses to the following questions.

- *Should the IWTP be used to treat industrial wastewater and if so when?*
- *What IWTP modifications are needed to assure safe and efficient operation of the IWTP?*
- *What industrial wastes can and cannot be treated by the Whiteman AFB IWTP?*
- *What improvements to the fire protection and industrial wastewater system are needed to effectively manage releases of fire protection wastewater?*
- *Is there sufficient oil and grease removal capacity within the industrial wastewater collection system?*
- *What pollution/prevention initiatives would benefit the Whiteman AFB industrial wastewater management program?*
- *Which industrial shops have the greatest impact on industrial wastewater at Whiteman AFB?*
- *What can be done to improve and assist the control and manage foam within the industrial wastewater system at Whiteman?*
- *Are modifications to the Whiteman AFB NPDES permit needed?*
- *What other problems need to be addressed within the Whiteman AFB industrial wastewater management system?*

Recommendations in response to these issues are presented below:

- ***Should the IWTP be used to treat industrial wastewater and if so when?***

  The IWTP is not needed to treat the industrial wastewater presently generated at Whiteman AFB. It is the recommendation of this report that the IWTP be modified to address several key operation and safety issues. The IWTP should be maintained on stand by and in operable condition to supplement industrial waste treatment capacity for treatment of complex and chlorinated organic contaminants and heavy metals wastes that could be generated as a result of future B-2 maintenance and flight operations support.

- ***What IWTP modifications are needed to assure safe and efficient operation of the IWTP?***

  The principal IWTP safety issues involve hydrogen sulfide emissions, noxious odors and chemical storage and handling. Portable hydrogen sulfide monitors (e.g., Draeger Tubes)

and training in their use should be provided to the plant operators and maintenance personnel.

The IWTP ventilation system should be analyzed and improved to remove noxious odors and hydrogen sulfide gas from the building.

The use of sulfuric acid for pH adjustment should be discontinued. Hydrochloric acid should be restored as the acid used for pH adjustment.

The bulk chemical storage facilities should be modified to prevent contact of reactive chemicals (acid spill containment separated from alkaline spill containment) in the event of a chemical spill or chemical storage tank failure. The IWTP spill prevention and countermeasures plan should also be updated to reflect these modifications and operations changes.

Incorporation of the dissolved air flotation unit within the IWTP treatment scheme adds a difficult set of operational problems when managing AFFF wastes. The normal IWTP treatment scheme should incorporate only the use of the settling, sand and carbon filtration treatment components of industrial wastewater treatment system.

The IWTP is principally designed to remove heavy metal and complex organic contaminants from industrial wastewater. No monitoring devices or system to detect high strength organic and heavy metal wastes exists within the industrial wastewater collection system. Installation of automatic recorders and specific ion detectors, conductivity meters, etc., at the industrial wastewater confluence points would improve information for management of the industrial wastewater.

- ***What industrial wastes can and cannot be treated by the Whiteman AFB IWTP?***

Normal or routine industrial wastewater generated at Whiteman AFB does not require treatment at the IWTP. Whiteman AFB industrial wastewater that does not contain alcohol (AFFF contains approximately 20% OH), > 50 mg/L oil and grease, or AFFF can be effectively treated for removal of heavy metals and complex organic contaminants at the IWTP, provided the noted safety concerns are addressed.

- ***What improvements to the fire protection and industrial wastewater system are needed to effectively manage releases of fire protection wastewater?***

Numerous industrial wastewater system improvements are needed to improve effective management of fire protection wastewater. Principal recommendations to address this need are as follows:

1) Develop a fire protection system testing communications plan. The plan should establish a set of procedures to ensure good communication, cooperation and

coordination between the fire department, FOTW operators, fire test plumbers, B-2 maintenance hangar construction contractors, and the B-2 hangar acquisition officials.

2) Institute repairs to the B-2 fire alarm system that will enable all fire sensors to communicate to the fire alarm control room and shut the industrial wastewater lift station off automatically to divert fire protection wastewater to the AFFF surge basin.

3) Improve drainage in the vicinity of the AFFF surge tank. Divert floodwater away from all points that allow entry into the industrial wastewater surge protection system.

4) Brief top management of the 509th Bomb Wing on the potential operation and NPDES compliance consequences of sequential fire protection system testing and multiple fire events. Communication of the information will enable cost-effective decisions related to the need for additional AFFF surge protection capacity and the likelihood of a multiple fire event.

5) In the event that the risk determination of a multiple fire event requires additional AFFF surge protection capacity, it is recommended that the surge tank facilities be constructed above ground.

6) Full strength fire protection wastewater diverted to the AFFF surge tank or IWTP equalization basin should be introduced to the industrial wastewater collection system for treatment at the FOTW at a rate of no more than 5 gpm.

- ***Is there sufficient oil and grease removal capacity within the industrial wastewater collection system?***

No effective oil and grease removal capability exists internal to the Whiteman AFB industrial wastewater collection system. An oil/water removal system or separator is needed to provide fuel leak and spill protection for both the FOTW and IWTP. An above ground parallel or inverted plate oil/water separator with a capacity of approximately 300 gpm is recommended for construction. Joint installation of a defoaming unit prior to wastewater entry to the OWS would enhance the operational capability of the unit. Since the existing oil/water separator at building 5413 it can not be effectively serviced due to its depth, it should be circumvented and abandoned.

- ***What can be done to improve and assist the control and manage foam within the industrial wastewater system at Whiteman?***

In addition to installation of a defoaming unit at the recommended oil/water separator, awareness training concerning the adverse impact of AFFF on operation of the industrial wastewater management system is likely to be very beneficial. Instructions for industrial wastewater foam control could be provided with the awareness training.

- ***Which industrial shops have the greatest impact on industrial wastewater at Whiteman AFB?***

  Activities related to testing fire protection systems and the air craft maintenance and flight operations support shops associated with tenants occupying buildings 1125, 1119, and 91 have the most routine and significant adverse impact on the Whiteman AFB industrial wastewater management facilities.

  The most significant B-2 industrial shop impact on the nature of industrial wastewater observed by the IWSCS team occurred at site 2, building 5056-5057 on 28 March 1997. This event is discussed as part of Zone 4, presented within Section 4.

- ***What pollution/prevention initiatives would benefit the Whiteman AFB industrial wastewater management program?***

  The pollution prevention initiatives that will have the greatest benefit for the Whiteman AFB industrial wastewater management program are outlined in Appendix 6. Pollution prevention opportunities identified for industrial shops located at buildings 1125, 1119, and 91 will have the most immediate positive benefit on industrial wastewater.

- ***Are modifications to the Whiteman AFB NPDES permit needed?***

  Non-utilization of the existing IWTP could be considered a violation of the operating conditions of NPDES permit MO-0029378. Use of the IWTP as currently configured is not recommended. The appropriate State of Missouri regulatory agency administering the NPDES permit should be advised of the current IWTP status and consulted for direction with respect to any needed permit modifications.

- ***What other problems need to be addressed within the Whiteman AFB industrial wastewater management system?***

  1. Small flow measuring devices, such as a 30^0 V-notch weir, should be installed at the confluence points throughout the industrial wastewater system.
  2. If an above ground oil/water separator is constructed upstream of the sanitary sewer it should also incorporate a flow measuring device.
  3. Installation of inset sensors at key confluence points for measurement of specific conductance, pH, chlorides, selected metal ions would improve internal monitoring and management of industrial wastewater contaminants at their source.

The historic problems of industrial wastewater management at Whiteman AFB are readily solvable. Some additional equipment and technical changes are required to achieve satisfactory management and treatment of industrial wastewater at Whiteman AFB. Proven practical technologies and systems exist to address most of the pressing technical issues confronting the

industrial wastewater system. Many of the problems observed by the field team during the survey are related to "human factors". Management initiatives can provide considerable benefits requiring minimal expenditures towards solving some of the problems. Two general management areas that can improve industrial wastewater handling at Whiteman AFB are 1) better communication of issues and specific actions that cause industrial wastewater problems at the base and 2) improving cooperation between flight operations and flight support units (e.g., communicate and coordinate fire alarm acceptance testing six to eight weeks in advance).

SECTION 6

LIST OF REVIEWED INFORMATION and REFERENCES

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APPENDIX A

17 March 1997 Whiteman AFB, Missouri
Industrial Wastewater System Characterization Survey
In Briefing Outline

Whiteman AFB, Missouri
Industrial Wastewater System Characterization Survey
In Briefing Outline
17 March 1997

1.0 Participants/Introduction:

2.0 Project purpose: Review Whiteman AFB industrial wastewater system, identify problems and alternatives, and develop a plan to address issues of significance.

3.0 Initial Findings:
3.1 Industrial wastewater not as predicted
3.2 IWTP over designed
3.3 IWTP design impracticalities identified
3.4 NPDES permit compliance is tentative until industrial wastewater system and treatment system better understood
3.5 AFFF/industrial wastewater impact assessment needed to complete analysis

4.0 Current Investigation Purpose:
4.1 Sample/Analyze/Characterize industrial wastewater
4.2 Understand AFFF impact on industrial wastewater system
4.3 Develop a basis to make predictive changes of wastewater character
4.4 Develop final recommendations for modifications/additions to Whiteman AFB conceptual industrial wastewater treatment management system.

5.0 AL/OEB Expectations
5.1 Organized to support wartime mission with peacetime contract support
5.2 Program designed to collect samples/develop information to characterize industrial wastewater with current operations and anticipated future changes.
5.3 AL/OEBW team organized into three groups
- **two sample teams**
- **one investigation team**

5.4 Effort is focused on being responsive and providing correct answer

APPENDIX B

4 April 1997 Whiteman AFB, Missouri
Industrial Wastewater System Characterization Survey
Out Briefing Outline

Whiteman AFB, Missouri
Industrial Wastewater System Characterization Survey
Out Briefing Outline
4 April 1997

1.0 Participants/Introduction

2.0 Project purpose: Review Whiteman AFB industrial wastewater system, identify problems and alternatives, and develop a plan to address issues of significance.

3.0 Expectations: Review process is continuing, sample collection efforts were successful, pollution prevention opportunity assessments of industrial shops are near completion and the survey has established a direction to the process that will enable successful industrial wastewater system management.

4.0 Initial Findings:

- **Industrial wastewater is a system of dynamic problems. Historical source of many issues is related to Whiteman AFB expanding and changing mission.**
- **Design assumptions for wastewater characterization not representative of current industrial waste streams.**
- **Processes generating industrial wastewater have significantly changed and are still changing.**
- **Hydraulic/organic wastewater characteristics appear to be very low flow and weak strength. However the industrial wastewater character and nature is subject to rapid change due to fuel spills, fire alarms, and industrial shop activities.**
- **Some industrial wastewater treatment plant (IWTP) design characteristics are impractical (e.g., volume indicator NaOH tank, chemical storage tank layout, simplicity of operation).**
- **IWTP requires sophisticated operation and management. Upgrade needed for operator training and analytical/operational control testing.**

5.0 "Get Well" Plan

- **Initiate industrial wastewater pretreatment controls**
- **Schedule routine wastewater characterization/treatment study**
- **Initiate IWSCS recommended corrective action**

APPENDIX C

17 March 1997 Whiteman AFB, Missouri
Industrial Wastewater System Characterization Survey
Sample Data Tables

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS (cont'd)

Wastewater Samples

(ug/L)

Method Detection Limit		Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Date Collected	97/03/28				97/03/28				97/03/28				97/03/28				97/03/28				97/03/28			
	Sample Numbers	97020485:493:499:510:525-531				97020486:494:500:511:532-538				97020487:501:512:539-542				97020488:502:513:543-546				97020489:503:514:547-550				97020498:509:519:575-580			
	Tracking Numbers	GN970265				GN970266				GN970268				GN970269				GN970270				GN970276			
		Site 6				Site 7				Site 10				Site 11				Site 12				Site ?			
(ug/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
<5	2,4-Dinitrophenol	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	2,6-Dinitrotoluene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	2,4-Dinitrotoluene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Fluoranthene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Fluorene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Hexachlorobenzene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Hexachlorobutadiene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Hexachlorocyclopentadiene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Hexachloroethane	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Indeno(1,2,3-c,d)pyrene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Isophorone	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
	4,4-Methylenedianiline	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Naphthalene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
	N-Nitrosodi-n-Propylamine	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	N-Nitrosodiphenylamine	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Nitrobenzene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	2-Nitrophenol	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	4-Nitrophenol	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Pentachlorophenol	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Phenanthrene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Phenol	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	Pyrene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
	Toxaphene	ABSENT	97020493	97/04/02	e,f	ABSENT	97020494	97/04/02	e,g	SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608				ABSENT	97020498	97/04/02	e
<5	1,2,4-Trichlorobenzene	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	
<5	2,4,6-Trichlorophenol	<10	97020493	97/04/02	e	<10	97020494	97/04/02	g	NT				NT				NT				<10	97020498	97/04/02	

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Date Collected	97/03/28				97/03/28				97/03/28				97/03/28				97/03/28				97/03/28			
	Sample Numbers	97020504:515:551-553				97020490:495:505:516:554-560				97020491:496:506:517:561-567				97020497:507:518:568-574				97020508:				97020581:			
	Tracking Numbers	GN970271				GN970272				GN970273				GN970274				GN970275				GN970277			
		Site 16				Site 22				Site 23				Site 2				Site 10				Site 7			
	EPA 625																								
<5	Acenaphthene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Acenaphthylene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
	Aldrin	SEE EPA METHOD608				ABSENT	97020495	97/04/02	b,c	ABSENT	97020496	97/04/02	b,c	ABSENT	97020497	97/04/02	b,c	SEE EPA METHOD608				SEE EPA METHOD608			
<5	Anthracene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
	Aroclor 1260	SEE EPA METHOD608				ABSENT	97020495	97/04/02	b,c	ABSENT	97020496	97/04/02	b,c	ABSENT	97020497	97/04/02	b,c	SEE EPA METHOD608				SEE EPA METHOD608			
<5	Benzidine	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Benzo(a)anthracene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Benzo(a)pyrene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Benzo(b)fluoranthene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Benzo(g,h,i)perylene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Benzo(k)fluoranthene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
	beta-BHC	SEE EPA METHOD608				ABSENT	97020495	97/04/02	b,c	ABSENT	97020496	97/04/02	b,c	ABSENT	97020497		b,c	SEE EPA METHOD608				SEE EPA METHOD608			
	delta-BHC	SEE EPA METHOD608				ABSENT	97020495	97/04/02	b,c	ABSENT	97020496	97/04/02	b,c	ABSENT	97020497	97/04/02	b,c	SEE EPA METHOD608				SEE EPA METHOD608			
<5	Bis(2-chloro ethoxy)methane	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Bis(2-chloro ethyl)ether	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Bis(2-chloroisopropyl)ether	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Bis(2-ethylhexyl)phthalate	NT				22.5	97020495	97/04/02	b	[redacted]	97020496	97/04/02	b	10.6	97020497	97/04/02	b	NT				NT			
<5	4-Bromophenyl Phenyl Ether	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Butylbenzylphthalate	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
	Chlordane	SEE EPA METHOD608				ABSENT	97020495	97/04/02	b,c	ABSENT	97020496	97/04/02	b,c	ABSENT	97020497	97/04/02	b,c	SEE EPA METHOD608				SEE EPA METHOD608			
<5	4-chloro-3-methyl Phenol	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	2-chloronaphthalene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	2-chlorophenol	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	4-chlorophenyl Phenyl Ether	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Chrysene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
	4,4-DDD	SEE EPA METHOD608				ABSENT	97020495	97/04/02	b,c	ABSENT	97020496	97/04/02	b,c	ABSENT	97020497	97/04/02	b,c	SEE EPA METHOD608				SEE EPA METHOD608			
	4,4-DDE	SEE EPA METHOD608				ABSENT	97020495	97/04/02	b,c	ABSENT	97020496	97/04/02	b,c	ABSENT	97020497	97/04/02	b,c	SEE EPA METHOD608				SEE EPA METHOD608			
	4,4-DDT	SEE EPA METHOD608				ABSENT	97020495	97/04/02	b,c	ABSENT	97020496	97/04/02	b,c	ABSENT	97020497	97/04/02	b,c	SEE EPA METHOD608				SEE EPA METHOD608			
	Dieldrin	SEE EPA METHOD608				ABSENT	97020495	97/04/02	b,c	ABSENT	97020496	97/04/02	b,c	ABSENT	97020497	97/04/02	b,c	SEE EPA METHOD608				SEE EPA METHOD608			
<5	Dibenzo(a,h)anthracene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	1,2-Dichlorobenzene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	1,3-Dichlorobenzene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	1,4-Dichlorobenzene	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	3,3-Dichlorobenzidine	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	2,4-Dichlorophenol	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Diethylphthalate	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	2,4-Dimethylphenol	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Dimethylphthalate	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Di-n-Butylphthalate	NT				16.5	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	Di-n-Octylphthalate	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			
<5	4,6-Dinitro-2-Methylphenol	NT				<10	97020495	97/04/02	b	<10	97020496	97/04/02	b	<10	97020497	97/04/02	b	NT				NT			

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS (cont'd)

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
		97/03/28	97020504:515:551-553	GN970271	Site 16				
		97/03/28	97020490:495:505:516:554-560	GN970272	Site 22				
		97/03/28	97020491:496:506:517:561-567	GN970273	Site 23				
		97/03/28	97020497:507:518:568-574	GN970274	Site 2				
		97/03/28	97020508:	GN970275	Site 10				
		97/03/28	97020581:	GN970277	Site ?				
<5	2,4-Dinitrophenol					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	2,6-Dinitrotoluene					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	2,4-Dinitrotoluene					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Fluoranthene					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Fluorene					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Hexachlorobenzene					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Hexachlorobutadiene					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Hexachlorocyclopentadiene					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Hexachloroethane					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Indeno(1,2,3-c,d)pyrene					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Isophorone					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
	4,4-Methylenedianiline					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Naphthalene					NT			
						<10	97020495	97/04/02	b
						10.7	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
	N-Nitrosodi-n-Propylamine					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	N-Nitrosodiphenylamine					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Nitrobenzene					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	2-Nitrophenol					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	4-Nitrophenol					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Pentachlorophenol					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Phenanthrene					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Phenol					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	Pyrene					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
	Toxaphene					SEE EPA METHOD608			
						ABSENT	97020495	97/04/02	b,c
						ABSENT	97020496	97/04/02	b,c
						ABSENT	97020497	97/04/02	b,c
						SEE EPA METHOD608			
						SEE EPA METHOD608			
<5	1,2,4-Trichlorobenzene					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			
<5	2,4,6-Trichlorophenol					NT			
						<10	97020495	97/04/02	b
						<10	97020496	97/04/02	b
						<10	97020497	97/04/02	b
						NT			
						NT			

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

METALS

Wastewater Samples

(mg/L)

Method Detection Limit (mg/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Date Collected	97/03/28				97/03/28				97/03/28				97/03/28				97/03/28				97/03/28			
	Sample Numbers	97020485:493:499:510:525-531				97020486:494:500:511:532-538				97020487:501:512:539-542				97020488:502:513:543-546				97020489:503:514:547-550				97020498:509:519:575-580			
	Tracking Numbers	CN970265 & GN970265				CN970266 & GN970266				GN970268				GN970269				CN970270 & GN970270				GN970276			
		Site 6				Site 7				Site 10				Site 11				Site 12				Site 7			
	Group F																								
<0.030	Aluminum	0.064	97020510	97/04/07		0.045	97020511	97/04/07		0.354	97020512	97/04/08		0.054	97020513	97/04/07		0.195	97020514	97/04/08		1.12	97020519	97/04/08	
<0.003	Antimony	0.004	97020510	97/04/07		0.003	97020511	97/04/07		0.006	97020512	97/04/08		<0.003	97020513	97/04/07		0.008	97020514	97/04/08		<0.003	97020519	97/04/08	
<0.005	Arsenic	<0.005	97020510	97/04/07		0.005	97020511	97/04/07		<0.005	97020512	97/04/08		<0.005	97020513	97/04/07		<0.005	97020514	97/04/08		0.124	97020519	97/04/08	
<0.050	Barium	0.037	97020510	97/04/07		0.046	97020511	97/04/07		0.052	97020512	97/04/08		0.047	97020513	97/04/07		0.04	97020514	97/04/08		<0.025	97020519	97/04/08	
<0.001	Beryllium	<0.0005	97020510	97/04/07		<0.0005	97020511	97/04/07		0.0008	97020512	97/04/08		<0.0005	97020513	97/04/07		<0.0005	97020514	97/04/08		0.0152	97020519	97/04/08	
<0.05	Boron	NT	97020510	97/04/07		NT	97020511	97/04/07		NT	97020512	97/04/08		NT	97020513	97/04/07		NT	97020514	97/04/08		NT	97020519	97/04/08	
<0.001	Cadmium	0.007	97020510	97/04/07		0.002	97020511	97/04/07		<0.001	97020512	97/04/08		<0.001	97020513	97/04/07		0.171	97020514	97/04/08		0.015	97020519	97/04/08	
<1	Calcium	NT	97020510	97/04/07		NT	97020511	97/04/07		NT	97020512	97/04/08		NT	97020513	97/04/07		NT	97020514	97/04/08		NT	97020519	97/04/08	
<0.01	Chromium	<0.005	97020510	97/04/07		<0.005	97020511	97/04/07		0.047	97020512	97/04/08		<0.005	97020513	97/04/07		0.017	97020514	97/04/08		0.111	97020519	97/04/08	
<0.05	Cobalt	<0.025	97020510	97/04/07		<0.025	97020511	97/04/07		<0.025	97020512	97/04/08		<0.025	97020513	97/04/07		<0.025	97020514	97/04/08		0.146	97020519	97/04/08	
<0.02	Copper	0.016	97020510	97/04/07		0.024	97020511	97/04/07		0.012	97020512	97/04/08		<0.010	97020513	97/04/07		0.14	97020514	97/04/08		0.06	97020519	97/04/08	
<0.03	Iron	0.646	97020510	97/04/07		0.332	97020511	97/04/07		3.76	97020512	97/04/08		0.316	97020513	97/04/07		0.774	97020514	97/04/08		0.722	97020519	97/04/08	
<0.02	Lead	0.011	97020510	97/04/07		0.003	97020511	97/04/07		0.017	97020512	97/04/08		0.001	97020513	97/04/07		0.072	97020514	97/04/08		0.219	97020519	97/04/08	
<1	Magnesium	NT	97020510	97/04/07		NT	97020511	97/04/07		NT	97020512	97/04/08		NT	97020513	97/04/07		NT	97020514	97/04/08		NT	97020519	97/04/08	
<0.03	Manganese	NT	97020510	97/04/07		NT	97020511	97/04/07		NT	97020512	97/04/08		NT	97020513	97/04/07		NT	97020514	97/04/08		NT	97020519	97/04/08	
<0.0002	Mercury	<0.0002	97020510	97/04/07		0.0002	97020511	97/04/07		0.0003	97020512	97/04/08		<0.0002	97020513	97/04/07		<0.0002	97020514	97/04/08		0.0014	97020519	97/04/08	
<0.03	Molybdenum	<0.030	97020510	97/04/07		<0.030	97020511	97/04/07		<0.030	97020512	97/04/08		<0.030	97020513	97/04/07		<0.030	97020514	97/04/08		<0.030	97020519	97/04/08	
<0.03	Nickel	0.014	97020510	97/04/07		<0.010	97020511	97/04/07		0.039	97020512	97/04/08		<0.010	97020513	97/04/07		0.017	97020514	97/04/08		0.093	97020519	97/04/08	
<1	Potassium	NT	97020510	97/04/07		NT	97020511	97/04/07		NT	97020512	97/04/08		NT	97020513	97/04/07		NT	97020514	97/04/08		NT	97020519	97/04/08	
<0.005	Selenium	<0.005	97020510	97/04/07	c,*	<0.005	97020511	97/04/07	c,*	<0.005	97020512	97/04/08	c,*	<0.005	97020513	97/04/07	c,*	<0.005	97020514	97/04/08	c,*	0.257	97020519	97/04/08	
<0.01	Silver	<0.005	97020510	97/04/07		<0.005	97020511	97/04/07		<0.005	97020512	97/04/08		<0.005	97020513	97/04/07		<0.005	97020514	97/04/08		<0.005	97020519	97/04/08	
<1	Sodium	NT	97020510	97/04/07		NT	97020511	97/04/07		NT	97020512	97/04/08		NT	97020513	97/04/07		NT	97020514	97/04/08		NT	97020519	97/04/08	
<0.14	Strontium	0.089	97020510	97/04/07		0.397	97020511	97/04/07		0.377	97020512	97/04/08		0.089	97020513	97/04/07		0.149	97020514	97/04/08		<0.005	97020519	97/04/08	
<0.001	Thallium	<0.001	97020510	97/04/07	c,**	<0.001	97020511	97/04/07		<0.001	97020512	97/04/08		<0.001	97020513	97/04/07		<0.001	97020514	97/04/08		<0.001	97020519	97/04/08	
<0.21	Titanium	<0.025	97020510	97/04/07		<0.025	97020511	97/04/07		<0.025	97020512	97/04/08		<0.025	97020513	97/04/07		<0.025	97020514	97/04/08		<0.025	97020519	97/04/08	
<0.05	Vanadium	NT	97020510	97/04/07		NT	97020511	97/04/07		NT	97020512	97/04/08		NT	97020513	97/04/07		NT	97020514	97/04/08		NT	97020519	97/04/08	
<0.05	Zinc	0.050	97020510	97/04/07		0.027	97020511	97/04/07		0.372	97020512	97/04/08		0.35	97020513	97/04/07		0.524	97020514	97/04/08		0.543	97020519	97/04/08	
	8015 MOD (AFFF)																								
<0.10 mg/L	2(2-Butoxyetoxy)Ethanol	<0.1	97020485	97/04/02		0.442	97020486	97/04/02		<0.1	97020487	97/04/01		<0.1	97020488	97/04/04		0.1	97020489	97/04/04		NT			
*	Selenium low recovery	21.9%	97020510	97/04/07		51.6%	97020486	97/04/02		41.2%	97020487	97/04/01		17.3%	97020488	97/04/04		47.6%	97020489	97/04/04					
**	Thallium low recovery	44.0%	97020510																						

DATA SUMMARY FORM
COMMENTS
Wastewater Samples

< - Signifies none detected and the detection limits.
SN : SEE COMMENT
ABS : ABSENT

Comment Code

a: HOLD TIME EXCEEDED.
b: OTHER FUEL HYDROCARBONS ARE PRESENT.
c: SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ALKALINE COMPOSITION OF SAMPLE FOR SELENIUM AND/OR THALLIUM.
d: MATRIX SPIKE WAS BELOW ACCEPTABLE LIMITS FOR CARBON TETRACHLORIDE AND TRICHLOROETHENE DUE TO MATRIX INTERFERENCE.
e: PESTICIDES ARE ABSENT QUALITATIVELY (EPA 625)
f: Comments for OEHD Sample #: 97020493 HEAVY EMULSION. SAMPLE CONTAINED MODERATE AMOUNT OF JET FUEL TYPE HYDRO CARBONS (C12-C16).
g: Comments for OEHD Sample #: 97020494 HEAVY EMULSION. SAMPLE CONTAINED A SMALL AMOUNT OF JET-FUEL TYPE HYDROCARBONS.
h: Comments for OEHD Sample #: 97020499 TOLUENE APPROXIMATELY 1.1 UG/L, ETHYLBENZENE APPROXIMATELY 1.3 UG/L, M,P,XYLENE APPROXIMATELY 2.4 UG/L, O-XYLENE APPROXIMATELY 1.9 UG/L.
i: Comments for OEHD Sample #: 97020500 VINYL CHLORIDE APPROXIMATELY 3.3 UG/L, 1,1,1-TRICHLOROETHANE APPROXIMATELY 1.8 UG/L, M,P,-XYLENE APPROXIMATELY 1.2 UG/L, O-XYLENE APPROXIMATELY 1.0 UG/L.
j: Comments for OEHD Sample #: 97020501 SAMPLE DILUTED DUE TO OTHER FUEL HYDROCARBONS AT APPROXIMATELY 200-300UG/L.
k: Comments for OEHD Sample #: 97020547 (CBC) CANCELLED BY CHEMIST DUE TO FUEL LAYER OF SAMPLE WHICH WOULD BE DETRIMENTAL TO ANALYZER EQUIPMENT.
l: Comments for OEHD Sample #: 97020548 SMALL AMOUNTS OF JP-8.
m: Comments for OEHD Sample #: 97020540 MODERATE AMOUNTS OF JP-8.

Reviewed By:

VICTORIA S. DUNOVANT, Lt Col, USAF, BSC
Chief, Environmental Chemistry Branch

WHITEMAN PROJECT 17

DATA SUMMARY FORM

METALS

Wastewater Samples

(mg/L)

Method Detection Limit (mg/L)																											
	Date Collected	97/03/28				97/03/28				97/03/28				97/03/28				97/03/28				97/03/28			
	Sample Numbers	97020504:515:551-553				97020490:495:505:516:554-560				97020491:496:506:517:561-567				97020497:507:518:568-574				97020508:				97020581:			
	Tracking Numbers	GN970271				GN970272				GN970273				GN970274				GN970275				GN970277			
		Site 16				Site 22				Site 23				Site 2				Site 10				Site 7			
	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Group F																								
<0.030	Aluminum	1.10	97020515	97/04/08		0.07	97020516	97/04/07		0.44	97020517	97/04/08		0.25	97020518	97/04/08		NT				NT			
<0.003	Antimony	<0.003	97020515	97/04/08		0.005	97020516	97/04/07		0.005	97020517	97/04/08		0.005	97020518	97/04/08		NT				NT			
<0.005	Arsenic	<0.005	97020515	97/04/08		<0.005	97020516	97/04/07		<0.005	97020517	97/04/08		<0.005	97020518	97/04/08		NT				NT			
<0.050	Barium	0.063	97020515	97/04/08		0.048	97020516	97/04/07		0.033	97020517	97/04/08		0.053	97020518	97/04/08		NT				NT			
<0.001	Beryllium	<0.0005	97020515	97/04/08		<0.0005	97020516	97/04/07		<0.0005	97020517	97/04/08		<0.0005	97020518	97/04/08		NT				NT			
<0.05	Boron	NT				NT				NT				NT				NT				NT			
<0.001	Cadmium	0.001	97020515	97/04/08		0.005	97020516	97/04/07		<0.001	97020517	97/04/08		0.006	97020518	97/04/08		NT				NT			
<1	Calcium	NT				NT				NT				NT				NT				NT			
<0.01	Chromium	0.010	97020515	97/04/08		0.011	97020516	97/04/07		<0.005	97020517	97/04/08		0.031	97020518	97/04/08		NT				NT			
<0.05	Cobalt	<0.025	97020515	97/04/08		<0.025	97020516	97/04/07		<0.025	97020517	97/04/08		<0.025	97020518	97/04/08		NT				NT			
<0.02	Copper	0.057	97020515	97/04/08		0.01	97020516	97/04/07		<0.010	97020517	97/04/08		0.013	97020518	97/04/08		NT				NT			
<0.03	Iron	2.06	97020515	97/04/08		0.9	97020516	97/04/07		0.258	97020517	97/04/08		2.02	97020518	97/04/08		NT				NT			
<0.02	Lead	0.006	97020515	97/04/08		0.006	97020516	97/04/07		0.002	97020517	97/04/08		0.009	97020518	97/04/08		NT				NT			
<1	Magnesium	NT				NT				NT				NT				NT				NT			
<0.03	Manganese	NT				NT				NT				NT				NT				NT			
<0.0002	Mercury	<0.0002	97020515	97/04/08		<0.0002	97020516	97/04/07		<0.0002	97020517	97/04/08		<0.0002	97020518	97/04/08		NT				NT			
<0.03	Molybdenum	<0.030	97020515	97/04/08		<0.030	97020516	97/04/07		<0.030	97020517	97/04/08		<0.030	97020518	97/04/08		NT				NT			
<0.03	Nickel	<0.010	97020515	97/04/08		0.018	97020516	97/04/07		<0.010	97020517	97/04/08		0.034	97020518	97/04/08		NT				NT			
<1	Potassium	NT				NT				NT				NT				NT				NT			
<0.005	Selenium	<0.005	97020515	97/04/08	m,*	<0.005	97020516	97/04/07	m,*	<0.005	97020517	97/04/08	m,*	<0.005	97020518	97/04/08	m,*	NT				NT			
<0.01	Silver	<0.005	97020515	97/04/08		<0.005	97020516	97/04/07		<0.005	97020517	97/04/08		<0.005	97020518	97/04/08		NT				NT			
<1	Sodium	NT				NT				NT				NT				NT				NT			
<0.14	Strontium	0.478	97020515	97/04/08		[redacted]	97020516	97/04/07		[redacted]	97020517	97/04/08		[redacted]	97020518	97/04/08		NT				NT			
<0.001	Thallium	<0.001	97020515	97/04/08		<0.001	97020516	97/04/07		<0.001	97020517	97/04/08		<0.001	97020518	97/04/08		NT				NT			
<0.21	Titanium	<0.025	97020515	97/04/08		<0.025	97020516	97/04/07		<0.025	97020517	97/04/08		<0.025	97020518	97/04/08		NT				NT			
<0.05	Vanadium	NT				NT				NT				NT				NT				NT			
<0.05	Zinc	0.032	97020515	97/04/08		0.054	97020516	97/04/07		0.018	97020517	97/04/08		0.173	97020518	97/04/08		NT				NT			
	8015 MOD(AFFF)																								
<0.10 mg/	2(2-Butoxyetoxy)Ethanol	NT				[redacted]	97020490	97/04/04		<0.1	97020491	97/04/04		[redacted]	97020492	97/04/04		NT				NT			
* Selenium (low recovery)		79.5%	97020515	97/04/08		24%	97020490	97/04/04		36.4%	97020491	97/04/04		20.3%	97020492	97/04/04									
** Thallium (low recovery)																									

WHITEMAN PROJECT 17

DATA SUMMARY FORM

COMMENTS

Wastewater Samples

< - Signifies none detected and the detection limits.
SN : SEE COMMENT
ABS : Absent

Comment Code

a: HOLD TIME EXCEEDED.
b: HEAVY EMULSION. SAMPLE CONTAINED A LARGE AMOUNT OF JET-FUEL-TYPE HYDROCARBONS.
c: PESTICIDES QUALITATIVELY ABSENT (EPA 625).
d: OTHER FUEL HYDROCARBONS ARE PRESENT.
e: MATRIX SPIKE WAS BELOW ACCEPTABLE LIMITS FOR CARBON TETRACHLORIDE ANDTRICHLOROETHENE DUE TO MATRIX INTERFERENCE.
f: Comments for OEHD Sample #: 97020505 VINYL CHLORIDE APPROXIMATELY 1.6 UG/L, 1,1,1-TRICHLOROETHANE APPROXIMATELY 1.0 UG/L, M,P,-XYLENE APPROXIMATELY 0.9 UG/L, O-XYLENE APPROXIMATELY 1.1 UG/L.
g: Comments for OEHD Sample #: 97020506 VINYL CHLORIDE APPROXIMATELY 2.2 UG/L.
h: Comments for OEHD Sample #: 97020507 M,P,-XYLENE APPROXIMATELY 1.3 UG/L, O-XYLENE APPROXIMATELY 1.3 UG/L.
i: Comments for OEHD Sample #: 97020508 SAMPLE DILUTED DUE TO PRESENCE OF OTHER FUEL HYDROCARBONS AT APPROXIMATELY 200-300 UG/L.
j: Comments for OEHD Sample #: 97020552 LARGE AMOUNTS OF JP-8.
k: Comments for OEHD Sample #: 97020562 SMALL AMOUNTS OF JP-8.
l: Comments for OEHD Sample #: 97020581 RESULTS ARE IN mg/Bottle (ERA QC)
m: SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ALKALINE COMPOSITION OF SAMPLE FOR SELENIUM AND/OR THALLIUM.
n: Comments for OEHD Sample #: 97020555 TRACE AMOUNTS OF JP-8.

Reviewed By:

VICTORIA S. DUNOVANT, Lt Col, USAF, BSC
Chief, Environmental Chemistry Branch

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

METALS

Wastewater Samples

(mg/L)

Method Detection Limit (mg/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/23	97019177; 196; 261; 335-341;	GP970220 H2O POTABLE QC				
		97/03/23	97019178; 197; 342-347;	GP970221 PRESERVATIVE QC				
		97/03/23	97019179; 348;	GP970222 PITCHER BLK				
		97/03/23	97019198; 350-354	GP970223 ISCO EQUIP BLK				
	Group F							
<0.030	Aluminum				<0.015	97019196	97/04/03	
<0.003	Antimony				<0.003	97019196	97/04/03	
<0.005	Arsenic				<0.005	97019196	97/04/03	
<0.050	Barium				0.033	97019196	97/04/03	
<0.001	Beryllium				<0.0005	97019196	97/04/03	
<0.05	Boron				NT			
<0.001	Cadmium				<0.001	97019196	97/04/03	
<1	Calcium				NT			
<0.01	Chromium				<0.005	97019196	97/04/03	
<0.05	Cobalt				<0.025	97019196	97/04/03	
<0.02	Copper				0.015	97019196	97/04/03	
<0.03	Iron				0.045	97019196	97/04/03	
<0.02	Lead				0.001	97019196	97/04/03	
<1	Magnesium				NT			
<0.03	Manganese				NT			
<0.0002	Mercury				<0.0002	97019196	97/04/03	
<0.03	Molybdenum				<0.030	97019196	97/04/03	
<0.03	Nickel				<0.010	97019196	97/04/03	
<1	Potassium				NT			
<0.005	Selenium				<0.005	97019196	97/04/03	c,*
<0.01	Silver				<0.005	97019196	97/04/03	
<1	Sodium				NT			
<0.14	Strontium				0.262	97019196	97/04/03	
<0.001	Thallium				<0.001	97019196	97/04/03	c,**
<0.21	Titanium				<0.025	97019196	97/04/03	
<0.05	Vanadium				NT			
<0.05	Zinc				0.006	97019196	97/04/03	
	8015 MOD (AFFF)							
<0.10 mg/L	2(2-Butoxyetoxy)Ethanol				NT			
*	Selenium (low recoveries)				78.6%	97019196	97/04/03	
**	Thallium (low recovery)				74.1%	97019196	97/04/03	

Compound	Result	OE NUMBER	Date	Q
Group F				
Aluminum	<0.015	97019197	97/04/02	
Antimony	0.004	97019197	97/04/02	
Arsenic	<0.005	97019197	97/04/02	
Barium	<0.025	97019197	97/04/02	
Beryllium	<0.0005	97019197	97/04/02	
Boron	NT			
Cadmium	<0.001	97019197	97/04/02	
Calcium	NT			
Chromium	<0.005	97019197	97/04/02	
Cobalt	<0.025	97019197	97/04/02	
Copper	<0.010	97019197	97/04/02	
Iron	<0.030	97019197	97/04/02	
Lead	0.001	97019197	97/04/02	
Magnesium	NT			
Manganese	NT			
Mercury	<0.0002	97019197	97/04/02	
Molybdenum	<0.030	97019197	97/04/02	
Nickel	<0.010	97019197	97/04/02	
Potassium	NT			
Selenium	<0.005	97019197	97/04/02	
Silver	<0.005	97019197	97/04/02	
Sodium	NT			
Strontium	<0.005	97019197	97/04/02	
Thallium	<0.001	97019197	97/04/02	
Titanium	<0.025	97019197	97/04/02	
Vanadium	NT			
Zinc	0.002	97019197	97/04/02	
8015 MOD (AFFF)				
2(2-Butoxyetoxy)Ethanol	NT			

Compound	Result	OE NUMBER	Date	Q
Group F				
Aluminum	NT			
Antimony	NT			
Arsenic	NT			
Barium	NT			
Beryllium	NT			
Boron	NT			
Cadmium	NT			
Calcium	NT			
Chromium	NT			
Cobalt	NT			
Copper	NT			
Iron	NT			
Lead	NT			
Magnesium	NT			
Manganese	NT			
Mercury	NT			
Molybdenum	NT			
Nickel	NT			
Potassium	NT			
Selenium	NT			
Silver	NT			
Sodium	NT			
Strontium	NT			
Thallium	NT			
Titanium	NT			
Vanadium	NT			
Zinc	NT			
8015 MOD (AFFF)				
2(2-Butoxyetoxy)Ethanol	NSR	97020673		f

Compound	Result	OE NUMBER	Date	Q
Group F				
Aluminum	<0.015	97019198	97/04/04	
Antimony	<0.003	97019198	97/04/04	
Arsenic	<0.005	97019198	97/04/04	
Barium	<0.025	97019198	97/04/04	
Beryllium	<0.0005	97019198	97/04/04	
Boron	NT			
Cadmium	<0.001	97019198	97/04/04	
Calcium	NT			
Chromium	<0.005	97019198	97/04/04	
Cobalt	<0.025	97019198	97/04/04	
Copper	<0.010	97019198	97/04/04	
Iron	0.073	97019198	97/04/04	
Lead	<0.001	97019198	97/04/04	
Magnesium	NT			
Manganese	NT			
Mercury	<0.0002	97019198	97/04/04	
Molybdenum	<0.030	97019198	97/04/04	
Nickel	<0.010	97019198	97/04/04	
Potassium	NT			
Selenium	<0.005	97019198	97/04/04	
Silver	<0.005	97019198	97/04/04	
Sodium	NT			
Strontium	<0.005	97019198	97/04/04	
Thallium	<0.001	97019198	97/04/04	
Titanium	<0.025	97019198	97/04/04	
Vanadium	NT			
Zinc	0.011	97019198	97/04/04	
8015 MOD (AFFF)				
2(2-Butoxyetoxy)Ethanol	NT			

WHITEMAN PROJECT 17

DATA SUMMARY FORM

COMMENTS

Wastewater Samples

< - Signifies none detected and the detection limits.
SN : SEE COMMENT.
ABS : Absent

Comment Code

a: HOLD TIME EXCEEDED.
b: RECOVERY OF BROMOFORM WAS BELOW ACCEPTABLE LIMITS IN THE LABORATORY FORTIFIED BLANK.
c: SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ORGANIC OR ALKALINE COMPOSITION SELENIUM AND/OR THALLIUM.
d: All pesticides (EPA METHOD 625) were absent qualitatively.
e: Comments for OEHD Sample #: 97019177 POSITIVELY IDENTIFIED BROMODICHLOROMETHANE AT APPROXIMATELY 0.8 UG/L AND DIBROMOCHLOROMETHANE AT 3.3 UG/L AND BROMOFORM AT 8.5 UG/L.
f: Comments for OEHD Sample #: 97020673 CANCELED--NSR : NO SAMPLE RECEIVED

Reviewed By:

VICTORIA S. DUNOVANT, Lt Col, USAF, BSC
Chief, Environmental Chemistry Branch

WHITEMAN PROJECT 17

DATA SUMMARY FORM

METALS

Wastewater Samples

(mg/L)

Method Detection Limit																									
	Date Collected	97/03/11																							
	Sample Numbers	97017721-27 & 97017742-45																							
	Tracking Numbers	GN970200																							
		Rinse Water																							
(mg/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Group F																								
<0.030	Aluminum	<0.030	97017742	97/03/18																					
<0.003	Antimony	<0.003	97017742	97/03/18																					
<0.005	Arsenic	<0.005	97017742	97/03/18																					
<0.050	Barium	<0.050	97017742	97/03/18																					
<0.001	Beryllium	<0.001	97017742	97/03/18																					
<0.05	Boron	NT																							
<0.001	Cadmium	<0.001	97017742	97/03/18																					
<1	Calcium	NT																							
<0.01	Chromium	<0.010	97017742	97/03/18																					
<0.05	Cobalt	<0.050	97017742	97/03/18																					
<0.02	Copper	<0.020	97017742	97/03/18																					
<0.03	Iron	<0.030	97017742	97/03/18																					
<0.02	Lead	<0.020	97017742	97/03/18																					
<1	Magnesium	NT																							
<0.03	Manganese	<0.030	97017742	97/03/18																					
<0.0002	Mercury	<0.0002	97017742	97/03/18																					
<0.03	Molybdenum	<0.030	97017742	97/03/18																					
<0.03	Nickel	<0.020	97017742	97/03/18																					
<1	Potassium	NT																							
<0.005	Selenium	<0.005	97017742	97/03/18																					
<0.01	Silver	<0.010	97017742	97/03/18																					
<1	Sodium	NT																							
<0.14	Strontium	<0.005	97017742	97/03/18																					
<0.001	Thallium	<0.001	97017742	97/03/18																					
<0.21	Titanium	<0.050	97017742	97/03/18																					
<0.05	Vanadium	<0.050	97017742	97/03/18																					
<0.05	Zinc	<0.050	97017742	97/03/18																					
	8015MOD																								
<0.10 mg/L	2(2-Butoxyetoxy)Ethanol	<0.1	97017744	97/03/27																					

WHITEMAN PROJECT 17

DATA SUMMARY FORM
COMMENTS
Wastewater Samples

< - Signifies none detected and the detection limits.
SN : SEE COMMENT.
ABS : Absent

Comment Code

a: HOLD TIME EXCEEDED .

b: ABSENT = QUALITATIVE ANALYSIS ONLY
NO DUPLICATE WAS PROVIDED, THEREFORE, SAMPLE WAS ANALYZED WITHOUT MATRIX SPIKE.
SOME COMPOUNDS WERE REPORTED AS "SEE COMMENT" BECAUSE THE QC WAS BELOW ACCEPTABLE LIMITS. THE RESULTS OF THE ANALYSIS FOR THESE COMPOUNDS, WERE <10 UG/L.

Reviewed By:

VICTORIA S. DUNOVANT, Lt Col, USAF, BSC
Chief, Environmental Chemistry Branch

ARMSTRONG LABORATORY

Occupational & Environmental Health Directorate/OEA
2402 E. Drive, Bldg 140
Brooks AFB, Texas 78235-5114
(210) 536-3626, FAX (210) 536-9043

WHITEMAN PROJECT 17

DATA SUMMARY FORM

INORGANIC

Wastewater Samples

(mg/L)

Method Detection Limit (mg/L)	Compound	Date Collected	97/03/26				97/03/26				97/03/26				97/03/26				97/03/26				97/03/26			
		Sample Numbers	97020051; 59; 68; 75; 103-106;				97020064; 80; 135-137;				97020081; 82; 83; 176-181				97020182				9720052; 60; 69; 76; 107-113;				97020053; 61; 70; 77; 114-120			
		Tracking Numbers	CN970244 & GN970244				CN970252 & GN970252				CN970257 & GN970257				GN970259				CN970245 & GN970245				CN970246 & GN970246			
			SITE 15				SITE 16				SITE 18				SITE 19				[illegible]				[illegible]			
			Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Group A																									
<10	COD		262	97020103	97/04/01		<10	97020135	97/04/01		124	97020176	97/04/01		NT				347	97020107	97/04/01		13	97020114	97/04/01	
<1	Total Organic Carbon		226	97020103	97/04/01		15	97020135	97/04/01		66	97020176	97/04/01		NT				276	97020107	97/04/01		100	97020114	97/04/01	
	Group B																									
<0.3	Oil & Grease		230.4	97020104	97/04/08		1.12	97020136	97/04/08		NT				38mg/bottle	97020182	97/04/08	k	54.4	97020108	97/04/08		1.68	97020115	97/04/08	
<1	TPH		19.2	97020104	97/04/08		1	97020136	97/04/08		NT				36mg/bottle	97020182	97/04/08	k	14.4	97020108	97/04/08		1.52	97020115	97/04/08	
	Group C																									
<0.2	Ammonia		4.25	97020105	97/04/04		0.35	97020137	97/04/04		7.2	97020177	97/04/08		NT				12.5	97020109	97/04/04		0.47	97020116	97/04/04	
	Kjeldahl Nitrogen		58	97020105	97/04/04		1.1	97020137	97/04/04		9.0	97020177	97/04/08		NT				20	97020109	97/04/04		2.2	97020116	97/04/04	
<0.1	Nitrate+Nitrite		2.3	97020105	97/04/04		2.1	97020137	97/04/04		3.4	97020177	97/04/08		NT				<0.1	97020109	97/04/04		6.4	97020116	97/04/04	
	Phosphate, Ortho		1	97020105	97/04/04		<0.1	97020137	97/04/04		7.9	97020177	97/04/08		NT				1.7	97020109	97/04/04		1.65	97020116	97/04/04	
<0.10	Phosphorus, Total		1.2	97020105	97/04/04		<0.1	97020137	97/04/04		9.9	97020177	97/04/08		NT				2.6	97020109	97/04/04		1.95	97020116	97/04/04	
<0.1	**Group D**																									
<0.005	Cyanide, Total		NT				NT				0.50	97020178	97/04/01		NT				<0.005	97020110	97/04/01		<0.005	97020117	97/04/01	
	Group E																									
<10 ug/L	Phenols		NT				NT				110	97020179	97/04/03		NT				12	97020111	97/04/01		<10	97020118	97/04/01	
	Group G																									
	Acidity, Total		NT				NT				NT				NT				NT				NT			
	Alkalinity, Total		NT				NT				NT				NT				NT				NT			
	Bromide		NT				NT				NT				NT				NT				NT			
<1	Chloride		35.1	97020106	97/03/31		NT				88.1	97020180	97/03/31		NT				84.8	97020112	97/03/31		89.6	97020119	97/03/31	
units	Color		NT				NT				NT				NT				NT				NT			
	Langlier Index		NT				NT				NT				NT				NT				NT			
<1	Residue, Total		NT				NT				NT				NT				NT				NT			
<0.2 mL/L	Residue, Settleable		1.8	97020106	97/03/31	a	NT				<0.2	97020180	97/03/31	a	NT				0.8	97020112	97/03/31	a	0.3	97020119	97/03/31	a
<1	Residue, Filterable		2334	97020106	97/03/31		NT				174	97020180	97/03/31		NT				508	97020112	97/03/31		481	97020119	97/03/31	
<1	Residue, Nonfilterable		94	97020106	97/03/31		NT				390	97020180	97/03/31		NT				63	97020112	97/03/31		7	97020119	97/03/31	
<1	Residue, Volatile		NT				NT				NT				NT				NT				NT			
	Silica		NT				NT				NT				NT				NT				NT			
umhos	Specific Conductance		1226	97020106	97/03/31		NT				135	97020180	97/03/31		NT				892	97020112	97/03/31		719	97020119	97/03/31	
<1	Sulfates		202.8	97020106	97/03/31		NT				1.5	97020180	97/03/31		NT				86.8	97020112	97/03/31		78.2	97020119	97/03/31	
<0.1	Sulfides		NT				NT				4.2	97020181	97/04/07	a	NT				3.8	97020113	97/04/07	a	<0.1	97020120	97/04/07	a
<0.1	Surfactants		460	97020106	97/03/31	a	NT				<0.1	97020180	97/03/31	a	NT				3.4	97020112	97/03/31	a	0.18	97020119	97/03/31	a
units	Turbidity		NT				NT				NT				NT				NT				NT			
	Volatile Suspended Solids		60	97020106	97/03/31		NT				221	97020180	97/03/31		NT				46	97020112	97/03/31		3	97020119	97/03/31	

WHITEMAN PROJECT 17

DATA SUMMARY FORM

VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/26	97020051; 59; 68; 75; 103-106;	CN970244 & GN970244 SITE 15				
	EPA 624 OR 601/602							
<5.0	Benzene				<5	97020075	97/04/01	h
<5.0	Bromodichloromethane				<5	97020075	97/04/01	h
<5.0	Bromoform				<5	97020075	97/04/01	h
<5.0	Bromomethane				<5	97020075	97/04/01	h
<5.0	Carbon Tetrachloride				<5	97020075	97/04/01	h
<5.0	Chlorobenzene				<5	97020075	97/04/01	h
<5.0	Chloroethane				<5	97020075	97/04/01	h
<5.0	2-Chloroethylvinylether				<5	97020075	97/04/01	h
<5.0	Chloroform				<5	97020075	97/04/01	h
<5.0	Chloromethane				<5	97020075	97/04/01	h
<5.0	Dibromochloromethane				<5	97020075	97/04/01	h
<5.0	1,2-Dichlorobenzene				<5	97020075	97/04/01	h
<5.0	1,3-Dichlorobenzene				<5	97020075	97/04/01	h
<5.0	1,4-Dichlorobenzene				<5	97020075	97/04/01	h
<5.0	1,1-Dichloroethane				<5	97020075	97/04/01	h
<5.0	1,2-Dichloroethane				<5	97020075	97/04/01	h
<5.0	1,1-Dichloroethene				<5	97020075	97/04/01	h
<5.0	trans-1,2-Dichloroethene				<5	97020075	97/04/01	h
<5.0	1,2-Dichloropropane				<5	97020075	97/04/01	h
<5.0	cis-1,3-Dichloropropene				<5	97020075	97/04/01	h
<5.0	trans-1,3-Dichloropropene				<5	97020075	97/04/01	h
<5.0	Ethylbenzene				<5	97020075	97/04/01	h
<5.0	Methylene Chloride				<5	97020075	97/04/01	h
<5.0	1,1,2,2-Tetrachloroethane				<5	97020075	97/04/01	h
<5.0	Tetrachloroethene				<5	97020075	97/04/01	h
<5.0	Toluene				<5	97020075	97/04/01	h
<5.0	1,1,1-Trichloroethane				<5	97020075	97/04/01	h
<5.0	1,1,2-Trichloroethane				<5	97020075	97/04/01	h
<5.0	Trichloroethene				9.5	97020075	97/04/01	h
<5.0	Trichlorofluoromethane				<5	97020075	97/04/01	h
<5.0	m-Xylene & p-Xylene				<5	97020075	97/04/01	h
<5.0	o-Xylene				<5	97020075	97/04/01	h
<5.0	Vinyl Chloride				<5	97020075	97/04/01	h

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/26	97020064; 80; 135-137;	CN970252 & GN970252 SITE 16				
	EPA 624 OR 601/602							
<5.0	Benzene				<5	97020080	97/03/31	
<5.0	Bromodichloromethane				<5	97020080	97/03/31	
<5.0	Bromoform				<5	97020080	97/03/31	
<5.0	Bromomethane				<5	97020080	97/03/31	
<5.0	Carbon Tetrachloride				<5	97020080	97/03/31	
<5.0	Chlorobenzene				<5	97020080	97/03/31	
<5.0	Chloroethane				<5	97020080	97/03/31	
<5.0	2-Chloroethylvinylether				<5	97020080	97/03/31	
<5.0	Chloroform				<5	97020080	97/03/31	
<5.0	Chloromethane				<5	97020080	97/03/31	
<5.0	Dibromochloromethane				<5	97020080	97/03/31	
<5.0	1,2-Dichlorobenzene				<5	97020080	97/03/31	
<5.0	1,3-Dichlorobenzene				<5	97020080	97/03/31	
<5.0	1,4-Dichlorobenzene				<5	97020080	97/03/31	
<5.0	1,1-Dichloroethane				<5	97020080	97/03/31	
<5.0	1,2-Dichloroethane				<5	97020080	97/03/31	
<5.0	1,1-Dichloroethene				<5	97020080	97/03/31	
<5.0	trans-1,2-Dichloroethene				<5	97020080	97/03/31	
<5.0	1,2-Dichloropropane				<5	97020080	97/03/31	
<5.0	cis-1,3-Dichloropropene				<5	97020080	97/03/31	
<5.0	trans-1,3-Dichloropropene				<5	97020080	97/03/31	
<5.0	Ethylbenzene				<5	97020080	97/03/31	
<5.0	Methylene Chloride				<5	97020080	97/03/31	
<5.0	1,1,2,2-Tetrachloroethane				<5	97020080	97/03/31	
<5.0	Tetrachloroethene				<5	97020080	97/03/31	
<5.0	Toluene				<5	97020080	97/03/31	
<5.0	1,1,1-Trichloroethane				<5	97020080	97/03/31	
<5.0	1,1,2-Trichloroethane				<5	97020080	97/03/31	
<5.0	Trichloroethene				<5	97020080	97/03/31	
<5.0	Trichlorofluoromethane				<5	97020080	97/03/31	
<5.0	m-Xylene & p-Xylene				<5	97020080	97/03/31	
<5.0	o-Xylene				<5	97020080	97/03/31	
<5.0	Vinyl Chloride				<5	97020080	97/03/31	

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/26	97020081; 82; 83; 176-181	CN970257 & GN970257 SITE 18				
	EPA 624 OR 601/602							
<5.0	Benzene				<5	97020083	97/03/28	b,j
<5.0	Bromodichloromethane				<5	97020083	97/03/28	b,j
<5.0	Bromoform				<5	97020083	97/03/28	b,j
<5.0	Bromomethane				<5	97020083	97/03/28	b,j
<5.0	Carbon Tetrachloride				10.1	97020083	97/03/28	b,j
<5.0	Chlorobenzene				11.8	97020083	97/03/28	b,j
<5.0	Chloroethane				<5	97020083	97/03/28	b,j
<5.0	2-Chloroethylvinylether				<5	97020083	97/03/28	b,j
<5.0	Chloroform				<5	97020083	97/03/28	b,j
<5.0	Chloromethane				<5	97020083	97/03/28	b,j
<5.0	Dibromochloromethane				<5	97020083	97/03/28	b,j
<5.0	1,2-Dichlorobenzene				6.3	97020083	97/03/28	b,j
<5.0	1,3-Dichlorobenzene				<5	97020083	97/03/28	b,j
<5.0	1,4-Dichlorobenzene				<5	97020083	97/03/28	b,j
<5.0	1,1-Dichloroethane				<5	97020083	97/03/28	b,j
<5.0	1,2-Dichloroethane				13.4	97020083	97/03/28	b,j
<5.0	1,1-Dichloroethene				6.5	97020083	97/03/28	b,j
<5.0	trans-1,2-Dichloroethene				6.0	97020083	97/03/28	b,j
<5.0	1,2-Dichloropropane				<5	97020083	97/03/28	b,j
<5.0	cis-1,3-Dichloropropene				<5	97020083	97/03/28	b,j
<5.0	trans-1,3-Dichloropropene				<5	97020083	97/03/28	b,j
<5.0	Ethylbenzene				<5	97020083	97/03/28	b,j
<5.0	Methylene Chloride				<5	97020083	97/03/28	b,j
<5.0	1,1,2,2-Tetrachloroethane				5.2	97020083	97/03/28	b,j
<5.0	Tetrachloroethene				<5	97020083	97/03/28	b,j
<5.0	Toluene				10.5	97020083	97/03/28	b,j
<5.0	1,1,1-Trichloroethane				9.7	97020083	97/03/28	b,j
<5.0	1,1,2-Trichloroethane				<5	97020083	97/03/28	b,j
<5.0	Trichloroethene				6.4	97020083	97/03/28	b,j
<5.0	Trichlorofluoromethane				7.1	97020083	97/03/28	b,j
<5.0	m-Xylene & p-Xylene				<5	97020083	97/03/28	b,j
<5.0	o-Xylene				16.7	97020083	97/03/28	b,j
<5.0	Vinyl Chloride				16.1	97020083	97/03/28	b,j
					<5	97020083	97/03/28	b,j

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/26	97020182	GN970259 SITE 19				
	EPA 624 OR 601/602							
<5.0	Benzene				NT			
<5.0	Bromodichloromethane				NT			
<5.0	Bromoform				NT			
<5.0	Bromomethane				NT			
<5.0	Carbon Tetrachloride				NT			
<5.0	Chlorobenzene				NT			
<5.0	Chloroethane				NT			
<5.0	2-Chloroethylvinylether				NT			
<5.0	Chloroform				NT			
<5.0	Chloromethane				NT			
<5.0	Dibromochloromethane				NT			
<5.0	1,2-Dichlorobenzene				NT			
<5.0	1,3-Dichlorobenzene				NT			
<5.0	1,4-Dichlorobenzene				NT			
<5.0	1,1-Dichloroethane				NT			
<5.0	1,2-Dichloroethane				NT			
<5.0	1,1-Dichloroethene				NT			
<5.0	trans-1,2-Dichloroethene				NT			
<5.0	1,2-Dichloropropane				NT			
<5.0	cis-1,3-Dichloropropene				NT			
<5.0	trans-1,3-Dichloropropene				NT			
<5.0	Ethylbenzene				NT			
<5.0	Methylene Chloride				NT			
<5.0	1,1,2,2-Tetrachloroethane				NT			
<5.0	Tetrachloroethene				NT			
<5.0	Toluene				NT			
<5.0	1,1,1-Trichloroethane				NT			
<5.0	1,1,2-Trichloroethane				NT			
<5.0	Trichloroethene				NT			
<5.0	Trichlorofluoromethane				NT			
<5.0	m-Xylene & p-Xylene				NT			
<5.0	o-Xylene				NT			
<5.0	Vinyl Chloride				NT			

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/26	9720052; 60; 69; 76; 107-113;	CN970245 & GN970245 INF WWTP				
	EPA 624 OR 601/602							
<5.0	Benzene				<5	97020076	97/03/31	
<5.0	Bromodichloromethane				<5	97020076	97/03/31	
<5.0	Bromoform				<5	97020076	97/03/31	
<5.0	Bromomethane				<5	97020076	97/03/31	
<5.0	Carbon Tetrachloride				<5	97020076	97/03/31	
<5.0	Chlorobenzene				<5	97020076	97/03/31	
<5.0	Chloroethane				<5	97020076	97/03/31	
<5.0	2-Chloroethylvinylether				<5	97020076	97/03/31	
<5.0	Chloroform				<5	97020076	97/03/31	
<5.0	Chloromethane				<5	97020076	97/03/31	
<5.0	Dibromochloromethane				<5	97020076	97/03/31	
<5.0	1,2-Dichlorobenzene				<5	97020076	97/03/31	
<5.0	1,3-Dichlorobenzene				<5	97020076	97/03/31	
<5.0	1,4-Dichlorobenzene				<5	97020076	97/03/31	
<5.0	1,1-Dichloroethane				<5	97020076	97/03/31	
<5.0	1,2-Dichloroethane				<5	97020076	97/03/31	
<5.0	1,1-Dichloroethene				<5	97020076	97/03/31	
<5.0	trans-1,2-Dichloroethene				<5	97020076	97/03/31	
<5.0	1,2-Dichloropropane				<5	97020076	97/03/31	
<5.0	cis-1,3-Dichloropropene				<5	97020076	97/03/31	
<5.0	trans-1,3-Dichloropropene				<5	97020076	97/03/31	
<5.0	Ethylbenzene				<5	97020076	97/03/31	
<5.0	Methylene Chloride				<5	97020076	97/03/31	
<5.0	1,1,2,2-Tetrachloroethane				<5	97020076	97/03/31	
<5.0	Tetrachloroethene				<5	97020076	97/03/31	
<5.0	Toluene				<5	97020076	97/03/31	
<5.0	1,1,1-Trichloroethane				<5	97020076	97/03/31	
<5.0	1,1,2-Trichloroethane				<5	97020076	97/03/31	
<5.0	Trichloroethene				<5	97020076	97/03/31	
<5.0	Trichlorofluoromethane				<5	97020076	97/03/31	
<5.0	m-Xylene & p-Xylene				<5	97020076	97/03/31	
<5.0	o-Xylene				<5	97020076	97/03/31	
<5.0	Vinyl Chloride				<5	97020076	97/03/31	

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/26	97020053; 61; 70; 77; 114-120	CN970246 & GN970246 EFF WWTP				
	EPA 624 OR 601/602							
<5.0	Benzene				<5	97020077	97/03/31	i
<5.0	Bromodichloromethane				<5	97020077	97/03/31	i
<5.0	Bromoform				<5	97020077	97/03/31	i
<5.0	Bromomethane				<5	97020077	97/03/31	i
<5.0	Carbon Tetrachloride				<5	97020077	97/03/31	i
<5.0	Chlorobenzene				<5	97020077	97/03/31	i
<5.0	Chloroethane				<5	97020077	97/03/31	i
<5.0	2-Chloroethylvinylether				<5	97020077	97/03/31	i
<5.0	Chloroform				<5	97020077	97/03/31	i
<5.0	Chloromethane				<5	97020077	97/03/31	i
<5.0	Dibromochloromethane				<5	97020077	97/03/31	i
<5.0	1,2-Dichlorobenzene				<5	97020077	97/03/31	i
<5.0	1,3-Dichlorobenzene				<5	97020077	97/03/31	i
<5.0	1,4-Dichlorobenzene				<5	97020077	97/03/31	i
<5.0	1,1-Dichloroethane				<5	97020077	97/03/31	i
<5.0	1,2-Dichloroethane				<5	97020077	97/03/31	i
<5.0	1,1-Dichloroethene				<5	97020077	97/03/31	i
<5.0	trans-1,2-Dichloroethene				<5	97020077	97/03/31	i
<5.0	1,2-Dichloropropane				<5	97020077	97/03/31	i
<5.0	cis-1,3-Dichloropropene				<5	97020077	97/03/31	i
<5.0	trans-1,3-Dichloropropene				<5	97020077	97/03/31	i
<5.0	Ethylbenzene				<5	97020077	97/03/31	i
<5.0	Methylene Chloride				<5	97020077	97/03/31	i
<5.0	1,1,2,2-Tetrachloroethane				<5	97020077	97/03/31	i
<5.0	Tetrachloroethene				<5	97020077	97/03/31	i
<5.0	Toluene				<5	97020077	97/03/31	i
<5.0	1,1,1-Trichloroethane				<5	97020077	97/03/31	i
<5.0	1,1,2-Trichloroethane				<5	97020077	97/03/31	i
<5.0	Trichloroethene				<5	97020077	97/03/31	i
<5.0	Trichlorofluoromethane				<5	97020077	97/03/31	i
<5.0	m-Xylene & p-Xylene				<5	97020077	97/03/31	i
<5.0	o-Xylene				<5	97020077	97/03/31	i
<5.0	Vinyl Chloride				<5	97020077	97/03/31	i

ARMSTRONG LABORATORY

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

INORGANIC

Wastewater Samples

(mg/L)

Method Detection Limit (mg/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Date Collected	97/03/23				97/03/23				97/03/23				97/03/23											
	Sample Numbers	97019177; 196; 261; 335-341;				97019178; 197; 342-347;				97019179; 348;				97019198; 350-354											
	Tracking Numbers	GP970220				GP970221				GP970222				GP970223											
	[redacted]	[redacted]				[redacted]				[redacted]				[redacted]											
	Group A																								
<10	COD	<10	97019335	97/03/31		<10	97019342	97/03/31		NT				<10	97019349	97/03/31									
	Total Organic Carbon	<1	97019335	97/03/31		<1	97019342	97/03/31		NT				<1	97019349	97/03/31									
	Group B																								
<0.3	Oil & Grease	0.48	97019336	97/03/26		0.32	97019343	97/03/26		1	97019348	97/03/26		NT											
<1	TPH	0.32	97019336	97/03/26		<1	97019343	97/03/26		0.8	97019348	97/03/26		NT											
	Group C																								
<0.2	Ammonia	0.34	97019337	97/03/31		<0.2	97019344	97/03/28		NT				<0.2	97019350	97/03/28									
	Kjeldahl Nitrogen	0.3	97019337	97/03/31		0.4	97019344	97/03/28		NT				0.6	97019350	97/03/28									
<0.1	Nitrate+Nitrite	<0.1	97019337	97/03/31		<0.1	97019344	97/03/28		NT				<0.1	97019350	97/03/28									
<0.1	Phosphate, Ortho	0.22	97019337	97/03/31		<0.1	97019344	97/03/28		NT				<0.1	97019350	97/03/28									
<0.10	Phosphorus, Total	0.22	97019337	97/03/31		<0.1	97019344	97/03/28		NT				<0.1	97019350	97/03/28									
	Group D																								
<0.005	Cyanide, Total	<0.005	97019338	97/03/27		<0.005	97019345	97/03/27		NT				<0.005	97019351	97/03/27									
	Group E																								
<10 ug/L	Phenols	<10	97019339	97/03/31		<10	97019346	97/03/31		NT				<10	97019352	97/04/01									
	Group G																								
	Acidity, Total	NT				NT				NT				NT											
	Alkalinity, Total	NT				NT				NT				NT											
	Bromide	NT				NT				NT				NT											
<1	Chloride	30.3	97019340	97/03/26		NT				NT				<1.0	97019353	97/03/26									
units	Color	NT				NT				NT				NT											
	Langlier Index	NT				NT				NT				NT											
<1	Residue, Total	NT				NT				NT				NT											
<0.2 mL/L	Residue, Settleable	<0.2	97019340	97/03/26	a	NT				NT				<0.2	97019353	97/03/26	a								
<1	Residue, Filterable	269	97019340	97/03/26		NT				NT				1	97019353	97/03/26									
<1	Residue, Nonfilterable	<1	97019340	97/03/26		NT				NT				1	97019353	97/03/26									
<1	Residue, Volatile	NT				NT				NT				NT											
	Silica	NT				NT				NT				NT											
umhos	Specific Conductance	461	97019340	97/03/26		NT				NT				3	97019353	97/03/26									
<1	Sulfates	33.2	97019340	97/03/26		NT				NT				<1.0	97019353	97/03/26									
<0.1	Sulfides	<0.2	97019341	97/03/27		0.6	97019347	97/03/27		NT				<0.1	97019354	97/03/27									
<0.1	Surfactants	<0.1	97019340	97/03/26	a	NT				NT				<0.1	97019353	97/03/26	a								
units	Turbidity	NT				NT				NT				NT											
	Volatile Suspended Solids	<1	97019340	97/03/26		NT				NT				<1	97019353	97/03/26									

WHITEMAN PROJECT 17

DATA SUMMARY FORM

VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
		97/03/23	97019177; 196; 261; 335-341;	GP970220	H2O POTABLE QC				97/03/23	97019178; 197; 342-347;	GP970221		PRESERVATIVE QC				97/03/23	97019179; 348;	GP970222		PITCHER BLK				97/03/23	97019198; 350-354	GP970223		ISCO EQUIP BLK			
	EPA 624 OR 601/602																											
<5.0	Benzene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Bromodichloromethane				SN	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Bromoform				8.5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Bromomethane				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Carbon Tetrachloride				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Chlorobenzene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Chloroethane				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	2-Chloroethylvinylether				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Chloroform				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Chloromethane				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Dibromochloromethane				SN	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	1,2-Dichlorobenzene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	1,3-Dichlorobenzene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	1,4-Dichlorobenzene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	1,1-Dichloroethane				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	1,2-Dichloroethane				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	1,1-Dichloroethene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	trans-1,2-Dichloroethene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	1,2-Dichloropropane				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	cis-1,3-Dichloropropene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	trans-1,3-Dichloropropene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Ethylbenzene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Methylene Chloride				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	1,1,2,2-Tetrachloroethane				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Tetrachloroethene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Toluene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	1,1,1-Trichloroethane				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	1,1,2-Trichloroethane				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Trichloroethene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Trichlorofluoromethane				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	m-Xylene & p-Xylene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	o-Xylene				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											
<5.0	Vinyl Chloride				<5	97019177	97/03/26	b,e	<5	97019178	97/03/26	b	<5	97019179	97/03/27	b	NT											

ARMSTRONG LABORATORY

Occupational & Environmental Health Directorate/OEA
2402 E. Drive, Bldg 140
Brooks AFB, Texas 78235-5114
(210) 536-3626, FAX (210) 536-9043

WHITEMAN PROJECT 17
DATA SUMMARY FORM
INORGANIC
Wastewater Samples
(mg/L)

Method Detection Limit																									
	Date Collected	[redacted]																							
	Sample Numbers	97017721-27 & 97017742-45																							
	Tracking Numbers	GN970200																							
		[redacted] Water																							
(mg/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Group A																								
<10	COD	<10	97017721	97/03/21																					
	Total Organic Carbon	<1	97017721	97/03/21																					
	Group B																								
<0.3	Oil & Grease	<0.3	97017722	97/03/17																					
<1	TPH	<1	97017722	97/03/17																					
	Group C																								
<0.2	Ammonia	<0.2	97017723	97/03/20																					
	Kjeldahl Nitrogen	<0.2	97017723	97/03/20																					
<0.1	Nitrate+Nitrite	<0.1	97017723	97/03/20																					
<0.1	Phosphate, Ortho	<0.1	97017723	97/03/20																					
<0.10	Phosphorus, Total	<0.1	97017723	97/03/20																					
	Group D																								
<0.005	Cyanide, Total	<0.005	97017724	97/03/13																					
	Group E																								
<10 ug/L	Phenols	<10	97017725	97/03/14																					
	Group G																								
	Acidity, Total	NT																							
	Alkalinity, Total	NT																							
	Bromide	NT																							
<1	Chloride	3.8	97017726	97/03/18																					
units	Color	NT																							
	Langlier Index	NT																							
	Residue, Total	NT																							
<0.2mL/L	Residue, Settleable	<0.2	97017726	97/03/18	a																				
<1	Residue, Filterable	<1	97017726	97/03/18	a																				
<1	Residue, Nonfilterable	<1	97017726	97/03/18	a																				
<1	Residue, Volatile	<1	97017726	97/03/18	a																				
	Silica	NT																							
umhos	Specific Conductance	2	97017726	97/03/18																					
<1	Sulfates	5.4	97017726	97/03/18																					
<0.1	Sulfides	<0.1	97017727	97/03/13																					
	Surfactants	<0.1	97017726	97/03/18	a																				
units	Turbidity	NT																							
	Volatile Suspended Solids	<1	97017726	97/03/18	a																				

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)																											
	Date Collected	97/03/11																									
	Sample Numbers	97017721-27 & 97017742-45																									
	Tracking Numbers	GN970200																									
		Rinse Water																									
(ug/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q		
	EPA 624 OR 601/602																										
<5.0	Benzene	<5	97017745	97/03/14																							
<5.0	Bromodichloromethane	<5	97017745	97/03/14																							
<5.0	Bromoform	<5	97017745	97/03/14																							
<5.0	Bromomethane	<5	97017745	97/03/14																							
<5.0	Carbon Tetrachloride	<5	97017745	97/03/14																							
<5.0	Chlorobenzene	<5	97017745	97/03/14																							
<5.0	Chloroethane	<5	97017745	97/03/14																							
<5.0	2-Chloroethylvinylether	<5	97017745	97/03/14																							
<5.0	Chloroform	<5	97017745	97/03/14																							
<5.0	Chloromethane	<5	97017745	97/03/14																							
<5.0	Dibromochloromethane	<5	97017745	97/03/14																							
<5.0	1,2-Dichlorobenzene	<5	97017745	97/03/14																							
<5.0	1,3-Dichlorobenzene	<5	97017745	97/03/14																							
<5.0	1,4-Dichlorobenzene	<5	97017745	97/03/14																							
<5.0	1,1-Dichloroethane	<5	97017745	97/03/14																							
<5.0	1,2-Dichloroethane	<5	97017745	97/03/14																							
<5.0	1,1-Dichloroethene	<5	97017745	97/03/14																							
<5.0	trans-1,2-Dichloroethene	<5	97017745	97/03/14																							
<5.0	1,2-Dichloropropane	<5	97017745	97/03/14																							
<5.0	cis-1,3-Dichloropropene	<5	97017745	97/03/14																							
<5.0	trans-1,3-Dichloropropene	<5	97017745	97/03/14																							
<5.0	Ethylbenzene	<5	97017745	97/03/14																							
<5.0	Methylene Chloride	<5	97017745	97/03/14																							
<5.0	1,1,2,2-Tetrachloroethane	<5	97017745	97/03/14																							
<5.0	Tetrachloroethene	<5	97017745	97/03/14																							
<5.0	Toluene	<5	97017745	97/03/14																							
<5.0	1,1,1-Trichloroethane	<5	97017745	97/03/14																							
<5.0	1,1,2-Trichloroethane	<5	97017745	97/03/14																							
<5.0	Trichloroethene	<5	97017745	97/03/14																							
<5.0	Trichlorofluoromethane	<5	97017745	97/03/14																							
<5.0	m-Xylene & p-Xylene	<5	97017745	97/03/14																							
<5.0	o-Xylene	<5	97017745	97/03/14																							
<5.0	Vinyl Chloride	<5	97017745	97/03/14																							

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Date Collected	97/03/23				97/03/23				97/03/23				97/03/23											
	Sample Numbers	97019177; 196; 261; 335-341;				97019178; 197; 342-347;				97019179; 348;				97019198; 350-354											
	Tracking Numbers	GP970220				GP970221				GP970222				GP970223											
		H2O POTABLE QC				PRESERVATIVE QC				PITCHER BLK				ISCO EQUIP BLK											
	EPA 625																								
<5	Acenaphthene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Acenaphthylene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
	Aldrin	ABSENT			d	SEE EPA METHOD608				ABSENT			d	SEE EPA METHOD608											
<5	Anthracene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
	Aroclor 1260	ABSENT			d	SEE EPA METHOD608				ABSENT			d	SEE EPA METHOD608											
<5	Benzidine	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Benzo(a)anthracene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Benzo(a)pyrene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Benzo(b)fluoranthene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Benzo(g,h,i)perylene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Benzo(k)fluoranthene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
	beta-BHC	ABSENT			d	SEE EPA METHOD608				ABSENT			d	SEE EPA METHOD608											
	delta-BHC	ABSENT			d	SEE EPA METHOD608				ABSENT			d	SEE EPA METHOD608											
<5	Bis(2-chloro ethoxy)methane	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Bis(2-chloro ethyl)ether	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Bis(2-chloroisopropyl)ether	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Bis(2-ethylhexyl)phthalate	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	4-Bromophenyl Phenyl Ether	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Butylbenzylphthalate	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
	Chlordane	ABSENT			d	SEE EPA METHOD608				ABSENT			d	SEE EPA METHOD608											
<5	4-chloro-3-methyl Phenol	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	2-chloronaphthalene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	2-chlorophenol	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	4-chlorophenyl Phenyl Ether	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Chrysene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
	4,4-DDD	ABSENT			d	SEE EPA METHOD608				ABSENT			d	SEE EPA METHOD608											
	4,4-DDE	ABSENT			d	SEE EPA METHOD608				ABSENT			d	SEE EPA METHOD608											
	4,4-DDT	ABSENT			d	SEE EPA METHOD608				ABSENT			d	SEE EPA METHOD608											
	Dieldrin	ABSENT			d	SEE EPA METHOD608				ABSENT			d	SEE EPA METHOD608											
<5	Dibenzo(a,h)anthracene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	1,2-Dichlorobenzene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	1,3-Dichlorobenzene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	1,4-Dichlorobenzene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	3,3-Dichlorobenzidine	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	2,4-Dichlorophenol	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Diethylphthalate	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	2,4-Dimethylphenol	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Dimethylphthalate	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Di-n-Butylphthalate	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Di-n-Octylphthalate	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	4,6-Dinitro-2-Methylphenol	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS (cont'd)

Wastewater Samples

(ug/L)

Method Detection Limit																							
	Date Collected	97/03/23				97/03/23				97/03/23				97/03/23									
	Sample Numbers	97019177; 196; 261; 335-341;				97019178; 197; 342-347;				97019179; 348;				97019198; 350-354									
	Tracking Numbers	GP970220				GP970221				GP970222				GP970223									
		H2O POTABLE QC				PRESERVATIVE QC				PITCHER BLK				ISCO EQUIP BLK									
(ug/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
<5	2,4-Dinitrophenol	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	2,6-Dinitrotoluene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	2,4-Dinitrotoluene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Fluoranthene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Fluorene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Hexachlorobenzene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Hexachlorobutadiene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Hexachlorocyclopentadiene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Hexachloroethane	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Indeno(1,2,3-c,d)pyrene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Isophorone	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
	4,4-Methylenedianiline	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Naphthalene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
	N-Nitrosodi-n-Propylamine	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	N-Nitrosodiphenylamine	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Nitrobenzene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	2-Nitrophenol	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	4-Nitrophenol	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Pentachlorophenol	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Phenanthrene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Phenol	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	Pyrene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
	Toxephene	ABSENT			d	SEE EPA METHOD608				ABSENT			d	SEE EPA METHOD608											
<5	1,2,4-Trichlorobenzene	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											
<5	2,4,6-Trichlorophenol	<10	97019261	97/03/25		NT				<10	97019262	97/03/25		NT											

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Date Collected	97/03/11																							
	Sample Numbers	97017721-27 & 97017742-45																							
	Tracking Numbers	GN970200																							
		Rinse Water																							
	EPA 625																								
<5	Acenaphthene	<10	97017743	97/03/18	b																				
<5	Acenaphthylene	<10	97017743	97/03/18	b																				
	Aldrin	ABS	97017743	97/03/18	b																				
<5	Anthracene	<10	97017743	97/03/18	b																				
	Aroclor 1260	ABS	97017743	97/03/18	b																				
<5	Benzidine	<10	97017743	97/03/18	b																				
<5	Benzo(a)anthracene	<10	97017743	97/03/18	b																				
<5	Benzo(a)pyrene	<10	97017743	97/03/18	b																				
<5	Benzo(b)fluoranthene	<10	97017743	97/03/18	b																				
<5	Benzo(g,h,i)perylene	<10	97017743	97/03/18	b																				
<5	Benzo(k)fluoranthene	<10	97017743	97/03/18	b																				
	beta-BHC	ABS	97017743	97/03/18	b																				
	delta-BHC	ABS	97017743	97/03/18	b																				
<5	Bis(2-chloro ethoxy)methane	<10	97017743	97/03/18	b																				
<5	Bis(2-chloro ethyl)ether	<10	97017743	97/03/18	b																				
<5	Bis(2-chloroisopropyl)ether	SN	97017743	97/03/18	b																				
<5	Bis(2-ethylhexyl)phthalate	<10	97017743	97/03/18	b																				
<5	4-Bromophenyl Phenyl Ether	<10	97017743	97/03/18	b																				
<5	Butylbenzylphthalate	<10	97017743	97/03/18	b																				
	Chlordane	ABS	97017743	97/03/18	b																				
<5	4-chloro-3-methyl Phenol	<10	97017743	97/03/18	b																				
<5	2-chloronaphthalene	SN	97017743	97/03/18	b																				
<5	2-chlorophenol	<10	97017743	97/03/18	b																				
<5	4-chlorophenyl Phenyl Ether	<10	97017743	97/03/18	b																				
<5	Chrysene	<10	97017743	97/03/18	b																				
	4,4-DDD	ABS	97017743	97/03/18	b																				
	4,4-DDE	ABS	97017743	97/03/18	b																				
	4,4-DDT	ABS	97017743	97/03/18	b																				
	Dieldrin	ABS	97017743	97/03/18	b																				
<5	Dibenzo(a,h)anthracene	<10	97017743	97/03/18	b																				
<5	1,2-Dichlorobenzene	<10	97017743	97/03/18	b																				
<5	1,3-Dichlorobenzene	<10	97017743	97/03/18	b																				
<5	1,4-Dichlorobenzene	<10	97017743	97/03/18	b																				
<5	3,3-Dichlorobenzidine	<10	97017743	97/03/18	b																				
<5	2,4-Dichlorophenol	<10	97017743	97/03/18	b																				
<5	Diethylphthalate	<10	97017743	97/03/18	b																				
<5	2,4-Dimethylphenol	<10	97017743	97/03/18	b																				
<5	Dimethylphthalate	<10	97017743	97/03/18	b																				
<5	Di-n-Butylphthalate	<10	97017743	97/03/18	b																				
<5	Di-n-Octylphthalate	<10	97017743	97/03/18	b																				
<5	4,6-Dinitro-2-Methylphenol	<10	97017743	97/03/18	b																				

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS (cont'd)

Wastewater Samples

(ug/L)

Method Detection Limit																									
	Date Collected	97/03/11																							
	Sample Numbers	97017721-27 & 97017742-45																							
	Tracking Numbers	GN970200																							
		Rinse Water																							
(ug/L)	Compound	Results	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
<5	2,4-Dinitrophenol	<10	97017743	97/03/18	b																				
<5	2,6-Dinitrotoluene	<10	97017743	97/03/18	b																				
<5	2,4-Dinitrotoluene	<10	97017743	97/03/18	b																				
<5	Fluoranthene	<10	97017743	97/03/18	b																				
<5	Fluorene	<10	97017743	97/03/18	b																				
<5	Hexachlorobenzene	<10	97017743	97/03/18	b																				
<5	Hexachlorobutadiene	<10	97017743	97/03/18	b																				
<5	Hexachlorocyclopentadiene	SN	97017743	97/03/18	b																				
<5	Hexachloroethane	<10	97017743	97/03/18	b																				
<5	Indeno(1,2,3-c,d)pyrene	<10	97017743	97/03/18	b																				
<5	Isophorone	<10	97017743	97/03/18	b																				
	4,4-Methylenedianiline	ABS	97017743	97/03/18	b																				
<5	Naphthalene	<10	97017743	97/03/18	b																				
	N-Nitrosodi-n-Propylamine	<10	97017743	97/03/18	b																				
<5	N-Nitrosodiphenylamine	<10	97017743	97/03/18	b																				
<5	Nitrobenzene	<10	97017743	97/03/18	b																				
<5	2-Nitrophenol	<10	97017743	97/03/18	b																				
<5	4-Nitrophenol	<10	97017743	97/03/18	b																				
<5	Pentachlorophenol	<10	97017743	97/03/18	b																				
<5	Phenanthrene	<10	97017743	97/03/18	b																				
<5	Phenol	<10	97017743	97/03/18	b																				
<5	Pyrene	<10	97017743	97/03/18	b																				
	Toxaphene	ABS	97017743	97/03/18	b																				
<5	1,2,4-Trichlorobenzene	<10	97017743	97/03/18	b																				
<5	2,4,6-Trichlorophenol	<10	97017743	97/03/18	b																				

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit																									
	Date Collected	97/03/26				97/03/26				97/03/26				97/03/26				97/03/26				97/03/26			
	Sample Numbers	97020051; 59; 68; 75; 103-106;				97020064; 80; 135-137;				97020081; 82; 83; 176-181				97020182				9720052; 60; 69; 76; 107-113;				97020053; 61; 70; 77; 114-120			
	Tracking Numbers	CN970244 & GN970244				CN970252 & GN970252				CN970257 & GN970257				GN970259				CN970245 & GN970245				CN970246 & GN970246			
		SITE 15				SITE 16				SITE 18				SITE 19				INF WWTP				EFF WWTP			
ug/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	EPA 625																								
<5	Acenaphthene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Acenaphthylene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
	Aldrin	ABSENT	97020051	97/03/31	e,f	SEE EPA METHOD608				ABSENT	97020082	97/03/31	e	SEE EPA METHOD608				ABSENT	97020052	97/03/31	e,g	ABSENT	97020053	97/03/31	e
<5	Anthracene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
	Aroclor 1260	ABSENT	97020051	97/03/31	e,f	SEE EPA METHOD608				ABSENT	97020082	97/03/31	e	SEE EPA METHOD608				ABSENT	97020052	97/03/31	e,g	ABSENT	97020053	97/03/31	e
<5	Benzidine	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Benzo(a)anthracene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Benzo(a)pyrene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Benzo(b)fluoranthene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Benzo(g,h,i)perylene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Benzo(k)fluoranthene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
	beta-BHC	ABSENT	97020051	97/03/31	e,f	SEE EPA METHOD608				ABSENT	97020082	97/03/31	e	SEE EPA METHOD608				ABSENT	97020052	97/03/31	e,g	ABSENT	97020053	97/03/31	e
	delta-BHC	ABSENT	97020051	97/03/31	e,f	SEE EPA METHOD608				ABSENT	97020082	97/03/31	e	SEE EPA METHOD608				ABSENT	97020052	97/03/31	e,g	ABSENT	97020053	97/03/31	e
<5	Bis(2-chloro ethoxy)methane	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Bis(2-chloro ethyl)ether	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Bis(2-chloroisopropyl)ether	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Bis(2-ethylhexyl)phthalate	289	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	4-Bromophenyl Phenyl Ether	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Butylbenzylphthalate	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
	Chlordane	ABSENT	97020051	97/03/31	e,f	SEE EPA METHOD608				ABSENT	97020082	97/03/31	e	SEE EPA METHOD608				ABSENT	97020052	97/03/31	e,g	ABSENT	97020053	97/03/31	e
<5	4-chloro-3-methyl Phenol	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	2-chloronaphthalene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	2-chlorophenol	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	4-chlorophenyl Phenyl Ether	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Chrysene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
	4,4-DDD	ABSENT	97020051	97/03/31	e,f	SEE EPA METHOD608				ABSENT	97020082	97/03/31	e	SEE EPA METHOD608				ABSENT	97020052	97/03/31	e,g	ABSENT	97020053	97/03/31	e
	4,4-DDE	ABSENT	97020051	97/03/31	e,f	SEE EPA METHOD608				ABSENT	97020082	97/03/31	e	SEE EPA METHOD608				ABSENT	97020052	97/03/31	e,g	ABSENT	97020053	97/03/31	e
	4,4-DDT	ABSENT	97020051	97/03/31	e,f	SEE EPA METHOD608				ABSENT	97020082	97/03/31	e	SEE EPA METHOD608				ABSENT	97020052	97/03/31	e,g	ABSENT	97020053	97/03/31	e
	Dieldrin	ABSENT	97020051	97/03/31	e,f	SEE EPA METHOD608				ABSENT	97020082	97/03/31	e	SEE EPA METHOD608				ABSENT	97020052	97/03/31	e,g	ABSENT	97020053	97/03/31	e
<5	Dibenzo(a,h)anthracene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	1,2-Dichlorobenzene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	1,3-Dichlorobenzene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	1,4-Dichlorobenzene	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	3,3-Dichlorobenzidine	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	2,4-Dichlorophenol	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Diethylphthalate	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	2,4-Dimethylphenol	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Dimethylphthalate	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Di-n-Butylphthalate	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	Di-n-Octylphthalate	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	
<5	4,6-Dinitro-2-Methylphenol	<100	97020051	97/03/31	f	NT				<10	97020082	97/03/31		NT				<10	97020052	97/03/31	g	<10	97020053	97/03/31	

DATA SUMMARY FORM
SEMI-VOLATILE ORGANICS (cont'd)
Wastewater Samples
(ug/L)

Method Detection Limit ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
<5	2,4-Dinitrophenol	97/03/26	97020051; 59; 68; 75; 103-106;	CN970244 & GN970244	SITE 15	<100	97020051	97/03/31	f
<5	2,6-Dinitrotoluene					<100	97020051	97/03/31	f
<5	2,4-Dinitrotoluene					<100	97020051	97/03/31	f
<5	Fluoranthene					<100	97020051	97/03/31	f
<5	Fluorene					<100	97020051	97/03/31	f
<5	Hexachlorobenzene					<100	97020051	97/03/31	f
<5	Hexachlorobutadiene					<100	97020051	97/03/31	f
<5	Hexachlorocyclopentadiene					<100	97020051	97/03/31	f
<5	Hexachloroethane					<100	97020051	97/03/31	f
<5	Indeno(1,2,3-c,d)pyrene					<100	97020051	97/03/31	f
<5	Isophorone					<100	97020051	97/03/31	f
	4,4-Methylenedianiline					<100	97020051	97/03/31	f
<5	Naphthalene					<100	97020051	97/03/31	f
	N-Nitrosodi-n-Propylamine					<100	97020051	97/03/31	f
<5	N-Nitrosodiphenylamine					<100	97020051	97/03/31	f
<5	Nitrobenzene					<100	97020051	97/03/31	f
<5	2-Nitrophenol					<100	97020051	97/03/31	f
<5	4-Nitrophenol					<100	97020051	97/03/31	f
<5	Pentachlorophenol					<100	97020051	97/03/31	f
<5	Phenanthrene					<100	97020051	97/03/31	f
<5	Phenol					<100	97020051	97/03/31	f
<5	Pyrene					<100	97020051	97/03/31	f
	Toxaphene					ABSENT	97020051	97/03/31	e,f
<5	1,2,4-Trichlorobenzene					<100	97020051	97/03/31	f
<5	2,4,6-Trichlorophenol					<100	97020051	97/03/31	f

Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
2,4-Dinitrophenol	97/03/26	97020064; 80; 135-137;	CN970252 & GN970252	SITE 16	NT			
2,6-Dinitrotoluene					NT			
2,4-Dinitrotoluene					NT			
Fluoranthene					NT			
Fluorene					NT			
Hexachlorobenzene					NT			
Hexachlorobutadiene					NT			
Hexachlorocyclopentadiene					NT			
Hexachloroethane					NT			
Indeno(1,2,3-c,d)pyrene					NT			
Isophorone					NT			
4,4-Methylenedianiline					NT			
Naphthalene					NT			
N-Nitrosodi-n-Propylamine					NT			
N-Nitrosodiphenylamine					NT			
Nitrobenzene					NT			
2-Nitrophenol					NT			
4-Nitrophenol					NT			
Pentachlorophenol					NT			
Phenanthrene					NT			
Phenol					NT			
Pyrene					NT			
Toxaphene					SEE EPA METHOD608			
1,2,4-Trichlorobenzene					NT			
2,4,6-Trichlorophenol					NT			

Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
2,4-Dinitrophenol	97/03/26	97020081; 82; 83; 176-181	CN970257 & GN970257	SITE 18	<10	97020082	97/03/31	
2,6-Dinitrotoluene					<10	97020082	97/03/31	
2,4-Dinitrotoluene					<10	97020082	97/03/31	
Fluoranthene					<10	97020082	97/03/31	
Fluorene					<10	97020082	97/03/31	
Hexachlorobenzene					<10	97020082	97/03/31	
Hexachlorobutadiene					<10	97020082	97/03/31	
Hexachlorocyclopentadiene					<10	97020082	97/03/31	
Hexachloroethane					<10	97020082	97/03/31	
Indeno(1,2,3-c,d)pyrene					<10	97020082	97/03/31	
Isophorone					<10	97020082	97/03/31	
4,4-Methylenedianiline					<10	97020082	97/03/31	
Naphthalene					<10	97020082	97/03/31	
N-Nitrosodi-n-Propylamine					<10	97020082	97/03/31	
N-Nitrosodiphenylamine					<10	97020082	97/03/31	
Nitrobenzene					<10	97020082	97/03/31	
2-Nitrophenol					<10	97020082	97/03/31	
4-Nitrophenol					<10	97020082	97/03/31	
Pentachlorophenol					<10	97020082	97/03/31	
Phenanthrene					<10	97020082	97/03/31	
Phenol					<10	97020082	97/03/31	
Pyrene					<10	97020082	97/03/31	
Toxaphene					ABSENT	97020082	97/03/31	e
1,2,4-Trichlorobenzene					<10	97020082	97/03/31	
2,4,6-Trichlorophenol					<10	97020082	97/03/31	

Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
2,4-Dinitrophenol	97/03/26	97020182	GN970259	SITE 19	NT			
2,6-Dinitrotoluene					NT			
2,4-Dinitrotoluene					NT			
Fluoranthene					NT			
Fluorene					NT			
Hexachlorobenzene					NT			
Hexachlorobutadiene					NT			
Hexachlorocyclopentadiene					NT			
Hexachloroethane					NT			
Indeno(1,2,3-c,d)pyrene					NT			
Isophorone					NT			
4,4-Methylenedianiline					NT			
Naphthalene					NT			
N-Nitrosodi-n-Propylamine					NT			
N-Nitrosodiphenylamine					NT			
Nitrobenzene					NT			
2-Nitrophenol					NT			
4-Nitrophenol					NT			
Pentachlorophenol					NT			
Phenanthrene					NT			
Phenol					NT			
Pyrene					NT			
Toxaphene					SEE EPA METHOD608			
1,2,4-Trichlorobenzene					NT			
2,4,6-Trichlorophenol					NT			

Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
2,4-Dinitrophenol	97/03/26	9720052; 60; 69; 76; 107-113;	CN970245 & GN970245	INF WWTP	<10	97020052	97/03/31	g
2,6-Dinitrotoluene					<10	97020052	97/03/31	g
2,4-Dinitrotoluene					<10	97020052	97/03/31	g
Fluoranthene					<10	97020052	97/03/31	g
Fluorene					<10	97020052	97/03/31	g
Hexachlorobenzene					<10	97020052	97/03/31	g
Hexachlorobutadiene					<10	97020052	97/03/31	g
Hexachlorocyclopentadiene					<10	97020052	97/03/31	g
Hexachloroethane					<10	97020052	97/03/31	g
Indeno(1,2,3-c,d)pyrene					<10	97020052	97/03/31	g
Isophorone					<10	97020052	97/03/31	g
4,4-Methylenedianiline					<10	97020052	97/03/31	g
Naphthalene					<10	97020052	97/03/31	g
N-Nitrosodi-n-Propylamine					<10	97020052	97/03/31	g
N-Nitrosodiphenylamine					<10	97020052	97/03/31	g
Nitrobenzene					<10	97020052	97/03/31	g
2-Nitrophenol					<10	97020052	97/03/31	g
4-Nitrophenol					<10	97020052	97/03/31	g
Pentachlorophenol					<10	97020052	97/03/31	g
Phenanthrene					<10	97020052	97/03/31	g
Phenol					<10	97020052	97/03/31	g
Pyrene					<10	97020052	97/03/31	g
Toxaphene					ABSENT	97020052	97/03/31	e,g
1,2,4-Trichlorobenzene					<10	97020052	97/03/31	g
2,4,6-Trichlorophenol					<10	97020052	97/03/31	g

Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
2,4-Dinitrophenol	97/03/26	97020053; 61; 70; 77; 114-120	CN970246 & GN970246	EFF WWTP	<10	97020053	97/03/31	
2,6-Dinitrotoluene					<10	97020053	97/03/31	
2,4-Dinitrotoluene					<10	97020053	97/03/31	
Fluoranthene					<10	97020053	97/03/31	
Fluorene					<10	97020053	97/03/31	
Hexachlorobenzene					<10	97020053	97/03/31	
Hexachlorobutadiene					<10	97020053	97/03/31	
Hexachlorocyclopentadiene					<10	97020053	97/03/31	
Hexachloroethane					<10	97020053	97/03/31	
Indeno(1,2,3-c,d)pyrene					<10	97020053	97/03/31	
Isophorone					<10	97020053	97/03/31	
4,4-Methylenedianiline					<10	97020053	97/03/31	
Naphthalene					<10	97020053	97/03/31	
N-Nitrosodi-n-Propylamine					<10	97020053	97/03/31	
N-Nitrosodiphenylamine					<10	97020053	97/03/31	
Nitrobenzene					<10	97020053	97/03/31	
2-Nitrophenol					<10	97020053	97/03/31	
4-Nitrophenol					<10	97020053	97/03/31	
Pentachlorophenol					<10	97020053	97/03/31	
Phenanthrene					<10	97020053	97/03/31	
Phenol					<10	97020053	97/03/31	
Pyrene					<10	97020053	97/03/31	
Toxaphene					ABSENT			e
1,2,4-Trichlorobenzene					<10	97020053	97/03/31	
2,4,6-Trichlorophenol					<10	97020053	97/03/31	

DATA SUMMARY FORM

METALS

Wastewater Samples

(mg/L)

lethod	Date Collected	97/03/26				97/03/26				97/03/26				97/03/26				97/03/26				97/03/26			
	Sample Numbers	97020051; 59; 68; 75; 103-106;				97020064; 80; 135-137;				97020081; 82; 83; 176-181				97020182				9720052; 60; 69; 76; 107-113;				97020053; 61; 70; 77; 114-120			
letection	Tracking Numbers	CN970244 & GN970244				CN970252 & GN970252				CN970257 & CN970257				GN970259				CN970245 & GN970245				CN970246 & GN970246			
imit		SITE 15				SITE 16				SITE 18				SITE 19				INF WWTP				EFF WWTP			
mg/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Group F																								
<0.030	Aluminum	2.04	97020059	97/04/03		1.84	97020064	97/04/03		1.97	97020081	97/04/03		NT				0.903	97020060	97/04/03		0.180	97020061	97/04/03	
<0.003	Antimony	<0.003	97020059	97/04/03		0.005	97020064	97/04/03		0.365	97020081	97/04/03		NT				<0.003	97020060	97/04/03		<0.003	97020061	97/04/03	
<0.005	Arsenic	<0.005	97020059	97/04/03		0.005	97020064	97/04/03		0.217	97020081	97/04/03		NT				<0.005	97020060	97/04/03		<0.005	97020061	97/04/03	
<0.050	Barium	0.077	97020059	97/04/03		0.161	97020064	97/04/03		<0.025	97020081	97/04/03		NT				0.057	97020060	97/04/03		0.027	97020061	97/04/03	
<0.001	Beryllium	0.0028	97020059	97/04/03		0.0008	97020064	97/04/03		0.028	97020081	97/04/03		NT				<0.0005	97020060	97/04/03		<0.0005	97020061	97/04/03	
<0.05	Boron	NT				NT				NT				NT				NT				NT			
<0.001	Cadmium	0.009	97020059	97/04/03		0.006	97020064	97/04/03		0.027	97020081	97/04/03		NT				<0.001	97020060	97/04/03		<0.001	97020061	97/04/03	
<1	Calcium	NT				NT				NT				NT				NT				NT			
<0.01	Chromium	0.016	97020059	97/04/03		<0.005	97020064	97/04/03		0.2	97020081	97/04/03		NT				<0.005	97020060	97/04/03		<0.005	97020061	97/04/03	
<0.05	Cobalt	<0.025	97020059	97/04/03		<0.025	97020064	97/04/03		0.269	97020081	97/04/03		NT				<0.025	97020060	97/04/03		<0.025	97020061	97/04/03	
<0.02	Copper	0.116	97020059	97/04/03		0.022	97020064	97/04/03		0.109	97020081	97/04/03		NT				0.03	97020060	97/04/03		<0.010	97020061	97/04/03	
<0.03	Iron	35.4	97020059	97/04/03		3.4	97020064	97/04/03		1.4	97020081	97/04/03		NT				0.76	97020060	97/04/03		0.207	97020061	97/04/03	
<0.02	Lead	0.012	97020059	97/04/03		0.007	97020064	97/04/03		0.381	97020081	97/04/03		NT				0.004	97020060	97/04/03		0.002	97020061	97/04/03	
<1	Magnesium	NT				NT				NT				NT				NT				NT			
<0.03	Manganese	NT				NT				NT				NT				NT				NT			
<0.0002	Mercury	<0.0002	97020059	97/04/03		0.0004	97020064	97/04/03		0.0019	97020081	97/04/03		NT				0.0003	97020060	97/04/03		0.0004	97020061	97/04/03	
<0.03	Molybdenum	<0.030	97020059	97/04/03		<0.030	97020064	97/04/03		<0.030	97020081	97/04/03		NT				<0.030	97020060	97/04/03		<0.030	97020061	97/04/03	
<0.03	Nickel	1.67	97020059	97/04/03		0.025	97020064	97/04/03		0.17	97020081	97/04/03		NT				<0.010	97020060	97/04/03		<0.010	97020061	97/04/03	
<1	Potassium	NT				NT				NT				NT				NT				NT			
<0.005	Selenium	<0.005	97020059	97/04/03	d,*	<0.005	97020064	97/04/03	d,*	0.496	97020081	97/04/03	d,*	NT				<0.005	97020060	97/04/03	d,*	<0.005	97020061	97/04/03	d,*
<0.01	Silver	0.007	97020059	97/04/03		<0.005	97020064	97/04/03		<0.005	97020081	97/04/03		NT				<0.005	97020060	97/04/03		<0.005	97020061	97/04/03	
<1	Sodium	NT				NT				NT				NT				NT				NT			
<0.14	Strontium	5.17	97020059	97/04/03		0.264	97020064	97/04/03		<0.005	97020081	97/04/03		NT				0.319	97020060	97/04/03		0.297	97020061	97/04/03	
<0.001	Thallium	<0.001	97020059	97/04/03	d,**	<0.001	97020064	97/04/03	d,**	<0.001	97020081	97/04/03		NT				<0.001	97020060	97/04/03		<0.001	97020061	97/04/03	
<0.21	Titanium	<0.025	97020059	97/04/03		<0.025	97020064	97/04/03		<0.025	97020081	97/04/03		NT				<0.025	97020060	97/04/03		<0.025	97020061	97/04/03	
<0.05	Vanadium	NT				NT				NT				NT				NT				NT			
<0.05	Zinc	1.41	97020059	97/04/03		0.07	97020064	97/04/03		1.08	97020081	97/04/03		NT				0.09	97020060	97/04/03		0.035	97020061	97/04/03	
	8015 MOD(AFFF)																								
<0.10 mg/L	2(2-Butoxyetoxy)Ethanol	52	97020068	97/04/04		NT				NT				NT				<0.1	97020069	97/04/02		<0.1	97020070	97/04/04	
*	Selenium (Low Recoveries)	4.5%	97020059	97/04/03		46%	97020064	97/04/03		73.8%	97020081	97/04/03		NT				35.1%	97020060	97/04/03		49.9%	97020061	97/04/03	
**	Thallium(Low Recovery)	27%	97020059	97/04/03		57%	97020064	97/04/03																	

DATA SUMMARY FORM
COMMENTS
Wastewater Samples

< - Signifies none detected and the detection limits.
SN : SEE COMMENT.
ABS : Absent

Comment Code

a: HOLD TIME EXCEEDED.

b: RECOVERY OF BROMOFORM WAS BELOW ACCEPTABLE LIMITS IN THE LABORATORY FORTIFIED BLANK.

c: OTHER FUEL HYDROCARBONS ARE PRESENT.

d: SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ORGANIC OR ALKALINE COMPOSITION FOR SELENIUM AND/OR THALLIUM.

e: All pesticides (EPA METHOD 625) were absent qualitatively.

f: Comments for OEHD Sample #: 97020051 VERY HEAVY EMULSION. RESULTS BASED ON A 1:10 DILUTION OF SAMPLE. SAMPLE CONTAINED EXTREMELY HIGH QUANTITY OF 2(2-BUTOXY ETHANOL) ETHANOL AND LARGE AMOUNTS OF 2-BUTOXY ETHANOL, 1-OCTANOL, 1-DECANOL,AND DODECANOL.

g: Comments for OEHD Sample #: 97020052 HEAVY EMULSION. SAMPLE CONTAINED MODERATE AMOUNTS OF LINALYL PROPANOATE AND VARIOUS ORGANIC FATTY ACIDS.

h: Comments for OEHD Sample #: 97020075 1,2-DICHLOROETHENE TENTATIVELY IDENTIFIED AT 13.2 UG/L.

i: Comments for OEHD Sample #: 97020077 TENTATIVELY IDENTIFIED ACETONE AT 40.5 UG/L. ALSO IDENTIFIED CHLOROFORM AT APPROXIMATELY 2.1 UG/L AND TRICHLOROETHENE AT 4.2 UG/L.

j: Comments for OEHD Sample #: 97020083 IDENTIFIED 1,1,1-TRICHLOROETHANE AT APPROXIMATELY 4.6 UG/L, BENZENE AT 4.8 UG/L, 1,2-DICHLOROPROPANE AT 4.7 UG/L, ETHYLBENZENE AT 3.0 UG/L AND 1,4-DICHLOROBENZENE AT 4.8 UG/L.

k: Comments for OEHD Sample #: 97020182 RESULTS ARE FOR OIL AND GREASE 38 mg/bottle AND TOTAL PETROLEUM HYDROCARBONS 36 mg/bottle.

Reviewed By: Victoria S. Dunovant

VICTORIA S. DUNOVANT, Lt Col, USAF, BSC
Chief, Environmental Chemistry Branch

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ARMSTRONG LABORATORY

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

INORGANIC

Wastewater Samples

(mg/L)

Method Detection Limit (mg/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Date Collected	97/03/27				97/03/27															
	Sample Numbers	97020317; 350-54; 359; 367;				97020318; 355; 360; 368; 374-79; 385;															
	Tracking Numbers	CN970263 & GN970263				CN970264 & GN970264															
		SITE 15				SITE 16															
	Group A																				
<10	COD	[illegible]	97020350	97/04/07		<10	97020355	97/04/07		NT				NT				NT			
<1	Total Organic Carbon	20.8	97020350	97/04/07		121.2	97020355	97/04/07		NT				NT				NT			
	Group B																				
<0.3	Oil & Grease	NT				7.52	97020375	97/04/08		NT				NT				NT			
<1	TPH	NT				1.76	97020375	97/04/08		NT				NT				NT			
	Group C																				
<0.2	Ammonia	4.35	97020351	97/04/04		0.4	97020376	97/04/04		NT				NT				NT			
	Kjeldahl Nitrogen	24	97020351	97/04/04		1.3	97020376	97/04/04		NT				NT				NT			
<0.1	Nitrate+Nitrite	4.8	97020351	97/04/04		0.8	97020376	97/04/04		NT				NT				NT			
<0.1	Phosphate, Ortho	0.39	97020351	97/04/04		0.14	97020376	97/04/04		NT				NT				NT			
<0.10	Phosphorus, Total	0.69	97020351	97/04/04		0.23	97020376	97/04/04		NT				NT				NT			
	Group D																				
<0.005	Cyanide, Total	<0.005	97020352	97/04/01		<0.005	97020377	97/04/01		NT				NT				NT			
	Group E																				
<10 ug/L	Phenols	53	97020353	97/04/03		<10	97020378	97/04/03		NT				NT				NT			
	Group G																				
	Acidity, Total	NT				NT				NT				NT				NT			
	Alkalinity, Total	NT				NT				NT				NT				NT			
	Bromide	NT				NT				NT				NT				NT			
<1	Chloride	9.79	97020354	97/04/01		29.8	97020379	97/04/01		NT				NT				NT			
units	Color	NT				NT				NT				NT				NT			
	Langlier Index	NT				NT				NT				NT				NT			
<1	Residue, Total	NT				NT				NT				NT				NT			
<0.2 mL/L	Residue, Settleable	<0.2	97020354	97/04/01	a	0.4	97020379	97/04/01	a	NT				NT				NT			
<1	Residue, Filterable	1037	97020354	97/04/01		249	97020379	97/04/01		NT				NT				NT			
<1	Residue, Nonfilterable	32	97020354	97/04/01		28	97020379	97/04/01		NT				NT				NT			
<1	Residue, Volatile	NT				NT				NT				NT				NT			
	Silica	NT				NT				NT				NT				NT			
umhos	Specific Conductance	997	97020354	97/04/01	a	462	97020379	97/04/01	a	NT				NT				NT			
<1	Sulfates	204.4	97020354	97/04/01		53.5	97020379	97/04/01		NT				NT				NT			
<0.1	Sulfides	NT				<0.1	97020385	97/04/08	a	NT				NT				NT			
<0.1	Surfactants	330.0	97020354	97/04/01		<0.1	97020379	97/04/01		NT				NT				NT			
units	Turbidity	NT				NT				NT				NT				NT			
<1	Volatile Suspended Solids	29	97020354	97/04/01		10	97020379	97/04/01		NT				NT				NT			

DATA SUMMARY FORM
VOLATILE ORGANICS
Wastewater Samples
(ug/L)

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	EPA 624 OR 601/602				SITE 15				SITE 16																			
<5.0	Benzene	97/03/27	97020317; 350-54; 359; 367;	CN970263 & GN970263	<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Bromodichloromethane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Bromoform				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Bromomethane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Carbon Tetrachloride				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Chlorobenzene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Chloroethane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	2-Chloroethylvinylether				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Chloroform				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Chloromethane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Dibromochloromethane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	1,2-Dichlorobenzene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	1,3-Dichlorobenzene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	1,4-Dichlorobenzene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	1,1-Dichloroethane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	1,2-Dichloroethane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	1,1-Dichloroethene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	trans-1,2-Dichloroethene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	1,2-Dichloropropane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	cis-1,3-Dichloropropene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	trans-1,3-Dichloropropene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Ethylbenzene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Methylene Chloride				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	1,1,2,2-Tetrachloroethane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Tetrachloroethene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Toluene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	1,1,1-Trichloroethane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	1,1,2-Trichloroethane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Trichloroethane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Trichlorofluoromethane				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	m-Xylene & p-Xylene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	o-Xylene				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			
<5.0	Vinyl Chloride				<5	97020317	97/04/01		<5	97020318	97/04/01		NT				NT				NT				NT			

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit																							
	Date Collected	97/03/27				97/03/27																	
	Sample Numbers	97020317; 350-54; 359; 367;				97020318; 355; 360; 368; 374-79; 385;																	
	Tracking Numbers	CN970263 & GN970263				CN970264 & GN970264																	
		SITE 15				SITE 16																	
(ug/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	EPA 625																								
<5	Acenaphthene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Acenaphthylene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
	Aldrin	SEE EPA METHOD608				ABSENT	97020374	97/04/02	c,d	SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608			
<5	Anthracene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
	Aroclor 1260	SEE EPA METHOD608				ABSENT	97020374	97/04/02	c,d	SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608			
<5	Benzidine	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Benzo(a)anthracene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Benzo(a)pyrene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Benzo(b)fluoranthene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Benzo(g,h,i)perylene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Benzo(k)fluoranthene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
	beta-BHC	SEE EPA METHOD608				ABSENT	97020374	97/04/02	c,d	SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608			
	delta-BHC	SEE EPA METHOD608				ABSENT	97020374	97/04/02	c,d	SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608			
<5	Bis(2-chloro ethoxy)methane	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Bis(2-chloro ethyl)ether	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Bis(2-chloroisopropyl)ether	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Bis(2-ethylhexyl)phthalate	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	4-Bromophenyl Phenyl Ether	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Butylbenzylphthalate	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
	Chlordane	SEE EPA METHOD608				ABSENT	97020374	97/04/02	c,d	SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608			
<5	4-chloro-3-methyl Phenol	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	2-chloronaphthalene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	2-chlorophenol	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	4-chlorophenyl Phenyl Ether	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Chrysene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
	4,4-DDD	SEE EPA METHOD608				ABSENT	97020374	97/04/02	c,d	SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608			
	4,4-DDE	SEE EPA METHOD608				ABSENT	97020374	97/04/02	c,d	SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608			
	4,4-DDT	SEE EPA METHOD608				ABSENT	97020374	97/04/02	c,d	SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608			
	Dieldrin	SEE EPA METHOD608				ABSENT	97020374	97/04/02	c,d	SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608			
<5	Dibenzo(a,h)anthracene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	1,2-Dichlorobenzene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	1,3-Dichlorobenzene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	1,4-Dichlorobenzene	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	3,3-Dichlorobenzidine	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	2,4-Dichlorophenol	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Diethylphthalate	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	2,4-Dimethylphenol	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Dimethylphthalate	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Di-n-Butylphthalate	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Di-n-Octylphthalate	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	4,6-Dinitro-2-Methylphenol	NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			

DATA SUMMARY FORM
SEMI-VOLATILE ORGANICS (cont'd)
Wastewater Samples
(ug/L)

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
		97/03/27	97020317; 350-54; 359; 367;	CN970263 & GN970263					97/03/27															
				SITE 15					97020318; 355; 360; 368; 374-79; 385;															
									CN970264 & GN970264															
									SITE 16															
<5	2,4-Dinitrophenol				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	2,6-Dinitrotoluene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	2,4-Dinitrotoluene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Fluoranthene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Fluorene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Hexachlorobenzene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Hexachlorobutadiene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Hexachlorocyclopentadiene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Hexachloroethane				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Indeno(1,2,3-c,d)pyrene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Isophorone				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
	4,4-Methylenedianiline				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Naphthalene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	N-Nitroso-di-n-Butylamine				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	N-Nitroso-di-methylamine				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
	N-Nitrosodi-n-Propylamine				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	N-Nitrosodiphenylamine				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Nitrobenzene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	2-Nitrophenol				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	4-Nitrophenol				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Pentachlorophenol				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Phenanthrene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Phenol				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	Pyrene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
	Toxaphene				SEE EPA METHOD608				ABSENT	97020374	97/04/02	c,d	SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608				SEE EPA METHOD608			
<5	1,2,4-Trichlorobenzene				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			
<5	2,4,6-Trichlorophenol				NT				<10	97020374	97/04/02	d	NT				NT				NT				NT			

DATA SUMMARY FORM
METALS
Wastewater Samples
(mg/L)

Method Detection Limit (mg/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Date Collected	97/03/27				97/03/27																			
	Sample Numbers	97020317; 350-54; 359; 367;				97020318; 355; 360; 368; 374-79; 385;																			
	Tracking Numbers	CN970263 & GN970263				CN970264 & GN970264																			
		SITE 15				SITE 16																			
	Group F																								
<0.030	Aluminum	0.158	97020367	97/04/03		0.903	97020368	97/04/03		NT				NT				NT				NT			
<0.003	Antimony	0.005	97020367	97/04/03		0.004	97020368	97/04/03		NT				NT				NT				NT			
<0.005	Arsenic	<0.005	97020367	97/04/03		<0.005	97020368	97/04/03		NT				NT				NT				NT			
<0.050	Barium	0.044	97020367	97/04/03		0.094	97020368	97/04/03		NT				NT				NT				NT			
<0.001	Beryllium	<0.0005	97020367	97/04/03		<0.0005	97020368	97/04/03		NT				NT				NT				NT			
<0.05	Boron	NT				NT				NT				NT				NT				NT			
<0.001	Cadmium	0.003	97020367	97/04/03		0.002	97020368	97/04/03		NT				NT				NT				NT			
<1	Calcium	NT				NT				NT				NT				NT				NT			
<0.01	Chromium	0.006	97020367	97/04/03		<0.005	97020368	97/04/03		NT				NT				NT				NT			
<0.05	Cobalt	<0.025	97020367	97/04/03		<0.025	97020368	97/04/03		NT				NT				NT				NT			
<0.02	Copper	0.049	97020367	97/04/03		0.03	97020368	97/04/03		NT				NT				NT				NT			
<0.03	Iron	2.42	97020367	97/04/03		1.75	97020368	97/04/03		NT				NT				NT				NT			
<0.02	Lead	0.004	97020367	97/04/03		0.005	97020368	97/04/03		NT				NT				NT				NT			
<1	Magnesium	NT				NT				NT				NT				NT				NT			
<0.03	Manganese	NT				NT				NT				NT				NT				NT			
<0.0002	Mercury	<0.0002	97020367	97/04/03		<0.0002	97020368	97/04/03		NT				NT				NT				NT			
<0.03	Molybdenum	<0.030	97020367	97/04/03		<0.030	97020368	97/04/03		NT				NT				NT				NT			
<0.03	Nickel	0.022	97020367	97/04/03		0.016	97020368	97/04/03		NT				NT				NT				NT			
<1	Potassium	NT				NT				NT				NT				NT				NT			
<0.005	Selenium	<0.005	97020367	97/04/03	b,*	<0.005	97020368	97/04/03	b,*	NT				NT				NT				NT			
<0.01	Silver	<0.005	97020367	97/04/03		<0.005	97020368	97/04/03		NT				NT				NT				NT			
<1	Sodium	NT				NT				NT				NT				NT				NT			
<0.14	Strontium	0.404	97020367	97/04/03		0.286	97020368	97/04/03		NT				NT				NT				NT			
<0.001	Thallium	<0.001	97020367	97/04/03		<0.001	97020368	97/04/03		NT				NT				NT				NT			
<0.21	Titanium	<0.025	97020367	97/04/03		<0.025	97020368	97/04/03		NT				NT				NT				NT			
<0.05	Vanadium	NT				NT				NT				NT				NT				NT			
<0.05	Zinc	0.077	97020367	97/04/03		0.031	97020368	97/04/03		NT				NT				NT				NT			
	8015 MOD																								
<0.10 mg/L	2(2-Butoxyetoxy)Ethanol	1420	97020359	97/04/08		<0.1	97020360	97/04/04		NT				NT				NT				NT			
*	Selenium (Low Recoveries)	9.3%	97020367	97/04/03		53.3%	97020368	97/04/03																	
**	Thallium(Low Recovery)																								

< - Signifies none detected and the detection limits.
SN : SEE COMMENT.
ABS : Absent

Comment Code

a: HOLD TIME EXCEEDED.

b: SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ORGANIC OR ALKALINE COMPOSITION FOR SELENIUM AND/OR THALLIUM.

c: All pesticides (EPA METHOD 625) were absent qualitatively.

d: Comments for OEHD Sample #: 97020374 SAMPLE CONTAINED A SMALL AMOUNT OF JET FUEL TYPE HYDROCARBONS (C12-C16).

Reviewed By: Victoria S. Dunovant
VICTORIA S. DUNOVANT, Lt Col, USAF, BSC
Chief, Environmental Chemistry Branch

ARMSTRONG LABORATORY

Occupational & Environmental Health Directorate/OEA
2402 E. Drive, Bldg 140
Brooks AFB, Texas 78235-5114
(210) 536-3626, FAX (210) 536-9043

WHITEMAN PROJECT 17

DATA SUMMARY FORM

INORGANIC

Wastewater Samples

(mg/L)

Method Detection Limit (mg/L)	Compound	Date Collected	97/03/28				97/03/28				97/03/28				97/03/28				97/03/28				97/03/28			
		Sample Numbers	97020504:515:551-553				97020490:495:505:516:554-560				97020491:496:506:517:561-567				97020497:507:518:568-574				97020508:				97020581:			
		Tracking Numbers	GN970271				GN970272				GN970273				GN970274				GN970275				GN970277			
			Site 16				Site 22				Site 23				Site 2				Site 10				Site ?			
			Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Group A																									
<10	COD		25	97020551	97/04/07		[redacted]	97020554	97/04/07		270	97020561	97/04/07		[redacted]	97020568	97/04/07		NT				NT			
<1	Total Organic Carbon		11.6	97020551	97/04/07		91.3	97020554	97/04/07		21.7	97020561	97/04/07		108.6	97020568	97/04/07		NT				NT			
	Group B																									
<0.3	Oil & Grease		[redacted]	97020552	97/04/08		[redacted]	97020555	97/04/08		65.6	97020562	97/04/08		[redacted]	97020569	97/04/08		NT				[redacted]	97020581	97/04/08	l
<1	TPH		[redacted]	97020552	97/04/08	j	30.3	97020555	97/04/08	n	50.4	97020562	97/04/08	k	[redacted]	97020569	97/04/08	k	NT				NT			
	Group C																									
<0.2	Ammonia		0.5	97020553	97/04/09		0.75	97020556	97/04/09		3.5	97020563	97/04/09		1	97020570	97/04/09		NT				NT			
	Kjeldahl Nitrogen		1.3	97020553	97/04/09		3.1	97020556	97/04/09		4.5	97020563	97/04/09		4.1	97020570	97/04/09		NT				NT			
<0.1	Nitrate+Nitrite		0.75	97020553	97/04/09		0.1	97020556	97/04/09		<0.1	97020563	97/04/09		<0.1	97020570	97/04/09		NT				NT			
<0.1	Phosphate, Ortho		<0.1	97020553	97/04/09		1.3	97020556	97/04/09		0.95	97020563	97/04/09		1.6	97020570	97/04/09		NT				NT			
<0.10	Phosphorus, Total		<0.1	97020553	97/04/09		2.15	97020556	97/04/09		1.1	97020563	97/04/09		2.55	97020570	97/04/09		NT				NT			
	Group D																									
<0.005	Cyanide, Total		NT				<0.005	97020557	97/04/07		<0.005	97020564	97/04/07		<0.005	97020571	97/04/07		NT				NT			
	Group E																									
<10 ug/L	Phenols		NT				21	97020558	97/04/03		35	97020565	97/04/03		21	97020572	97/04/03		NT				NT			
	Group G																									
	Acidity, Total		NT				NT				NT				NT				NT				NT			
	Alkalinity, Total		NT				NT				NT				NT				NT				NT			
	Bromide		NT				NT				NT				NT				NT				NT			
<1	Chloride		NT				73.1	97020559	97/04/01		105.1	97020566	97/04/01		89	97020573	97/04/01		NT				NT			
units	Color		NT				NT				NT				NT				NT				NT			
	Langlier Index		NT				NT				NT				NT				NT				NT			
<1	Residue, Total		NT				NT				NT				NT				NT				NT			
<0.2 mL/L	Residue, Settleable		NT				0.4	97020559	97/04/01	a	<0.2	97020566	97/04/01	a	0.2	97020573	97/04/01	a	NT				NT			
<1	Residue, Filterable		NT				556	97020559	97/04/01		885	97020566	97/04/01		522	97020573	97/04/01		NT				NT			
<1	Residue, Nonfilterable		NT				24	97020559	97/04/01		17	97020566	97/04/01		33	97020573	97/04/01		NT				NT			
<1	Residue, Volatile		NT				NT				NT				NT				NT				NT			
	Silica		NT				NT				NT				NT				NT				NT			
umhos	Specific Conductance		NT				765	97020559	97/04/01		1142	97020566	97/04/01		730	97020573	97/04/01		NT				NT			
<1	Sulfates		NT				[redacted]	97020559	97/04/01		[redacted]	97020566	97/04/01		[redacted]	97020573	97/04/01		NT				NT			
<0.1	Sulfides		NT				0.2	97020560	97/04/08	a	69.6	97020567	97/04/08	a	1.4	97020574	97/04/08	a	NT				NT			
<0.1	Surfactants		NT				0.14	97020559	97/04/01	a	3.6	97020566	97/04/01	a	[redacted]	97020573	97/04/01	a	NT				NT			
units	Turbidity		NT				NT				NT				NT				NT				NT			
<1	Volatile Suspended Solids		NT				20	97020559	97/04/01		8	97020566	97/04/01		28	97020573	97/04/01		NT				NT			

WHITEMAN PROJECT 17

DATA SUMMARY FORM

VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/28	97020504:515:551-553	GN970271 Site 16				
	EPA 624 OR 601/602							
<5.0	Benzene				<5	97020504	97/04/02	
<5.0	Bromodichloromethane				<5	97020504	97/04/02	
<5.0	Bromoform				<5	97020504	97/04/02	
<5.0	Bromomethane				<5	97020504	97/04/02	
<5.0	Carbon Tetrachloride				<5	97020504	97/04/02	e
<5.0	Chlorobenzene				<5	97020504	97/04/02	
<5.0	Chloroethane				<5	97020504	97/04/02	
<5.0	2-Chloroethylvinylether				<5	97020504	97/04/02	
<5.0	Chloroform				<5	97020504	97/04/02	
<5.0	Chloromethane				<5	97020504	97/04/02	
<5.0	Dibromochloromethane				<5	97020504	97/04/02	
<5.0	1,2-Dichlorobenzene				<5	97020504	97/04/02	
<5.0	1,3-Dichlorobenzene				<5	97020504	97/04/02	
<5.0	1,4-Dichlorobenzene				<5	97020504	97/04/02	
<5.0	1,1-Dichloroethane				<5	97020504	97/04/02	
<5.0	1,2-Dichloroethane				<5	97020504	97/04/02	
<5.0	1,1-Dichloroethene				<5	97020504	97/04/02	
<5.0	trans-1,2-Dichloroethene				<5	97020504	97/04/02	
<5.0	1,2-Dichloropropane				<5	97020504	97/04/02	
<5.0	cis-1,3-Dichloropropene				<5	97020504	97/04/02	
<5.0	trans-1,3-Dichloropropene				<5	97020504	97/04/02	
<5.0	Ethylbenzene				<5	97020504	97/04/02	
<5.0	Methylene Chloride				<5	97020504	97/04/02	
<5.0	1,1,2,2-Tetrachloroethane				<5	97020504	97/04/02	
<5.0	Tetrachloroethene				<5	97020504	97/04/02	e
<5.0	Toluene				<5	97020504	97/04/02	
<5.0	1,1,1-Trichloroethane				SN	97020504	97/04/02	
<5.0	1,1,2-Trichloroethane				<5	97020504	97/04/02	
<5.0	Trichloroethene				[redacted]	97020504	97/04/02	
<5.0	Trichlorofluoromethane				<5	97020504	97/04/02	
<5.0	m-Xylene & p-Xylene				SN	97020504	97/04/02	
<5.0	o-Xylene				SN	97020504	97/04/02	
<5.0	Vinyl Chloride				SN	97020504	97/04/02	

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/28	97020490:495:505:516:554-560	GN970272 Site 22				
	EPA 624 OR 601/602							
<5.0	Benzene				<5	97020505	97/04/02	d
<5.0	Bromodichloromethane				<5	97020505	97/04/02	d
<5.0	Bromoform				<5	97020505	97/04/02	d
<5.0	Bromomethane				<5	97020505	97/04/02	d
<5.0	Carbon Tetrachloride				<5	97020505	97/04/02	d,e
<5.0	Chlorobenzene				<5	97020505	97/04/02	d
<5.0	Chloroethane				<5	97020505	97/04/02	d
<5.0	2-Chloroethylvinylether				<5	97020505	97/04/02	d
<5.0	Chloroform				<5	97020505	97/04/02	d
<5.0	Chloromethane				<5	97020505	97/04/02	d
<5.0	Dibromochloromethane				<5	97020505	97/04/02	d
<5.0	1,2-Dichlorobenzene				<5	97020505	97/04/02	d
<5.0	1,3-Dichlorobenzene				<5	97020505	97/04/02	d
<5.0	1,4-Dichlorobenzene				<5	97020505	97/04/02	d
<5.0	1,1-Dichloroethane				<5	97020505	97/04/02	d
<5.0	1,2-Dichloroethane				<5	97020505	97/04/02	d
<5.0	1,1-Dichloroethene				<5	97020505	97/04/02	d
<5.0	trans-1,2-Dichloroethene				<5	97020505	97/04/02	d
<5.0	1,2-Dichloropropane				<5	97020505	97/04/02	d
<5.0	cis-1,3-Dichloropropene				<5	97020505	97/04/02	d
<5.0	trans-1,3-Dichloropropene				<5	97020505	97/04/02	d
<5.0	Ethylbenzene				<5	97020505	97/04/02	d
<5.0	Methylene Chloride				<5	97020505	97/04/02	d
<5.0	1,1,2,2-Tetrachloroethane				<5	97020505	97/04/02	d
<5.0	Tetrachloroethene				<5	97020505	97/04/02	d,e
<5.0	Toluene				<5	97020505	97/04/02	d
<5.0	1,1,1-Trichloroethane				SN	97020505	97/04/02	d,f
<5.0	1,1,2-Trichloroethane				<5	97020505	97/04/02	d
<5.0	Trichloroethene				[redacted]	97020505	97/04/02	d
<5.0	Trichlorofluoromethane				<5	97020505	97/04/02	d
<5.0	m-Xylene & p-Xylene				SN	97020505	97/04/02	d,f
<5.0	o-Xylene				SN	97020505	97/04/02	d,f
<5.0	Vinyl Chloride				SN	97020505	97/04/02	d,f

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/28	97020491:496:506:517:561-567	GN970273 Site 23				
	EPA 624 OR 601/602							
<5.0	Benzene				<5	97020506	97/04/02	d
<5.0	Bromodichloromethane				<5	97020506	97/04/02	d
<5.0	Bromoform				<5	97020506	97/04/02	d
<5.0	Bromomethane				<5	97020506	97/04/02	d
<5.0	Carbon Tetrachloride				<5	97020506	97/04/02	d,e
<5.0	Chlorobenzene				<5	97020506	97/04/02	d
<5.0	Chloroethane				<5	97020506	97/04/02	d
<5.0	2-Chloroethylvinylether				<5	97020506	97/04/02	d
<5.0	Chloroform				<5	97020506	97/04/02	d
<5.0	Chloromethane				<5	97020506	97/04/02	d
<5.0	Dibromochloromethane				<5	97020506	97/04/02	d
<5.0	1,2-Dichlorobenzene				<5	97020506	97/04/02	d
<5.0	1,3-Dichlorobenzene				<5	97020506	97/04/02	d
<5.0	1,4-Dichlorobenzene				<5	97020506	97/04/02	d
<5.0	1,1-Dichloroethane				<5	97020506	97/04/02	d
<5.0	1,2-Dichloroethane				<5	97020506	97/04/02	d
<5.0	1,1-Dichloroethene				<5	97020506	97/04/02	d
<5.0	trans-1,2-Dichloroethene				<5	97020506	97/04/02	d
<5.0	1,2-Dichloropropane				<5	97020506	97/04/02	d
<5.0	cis-1,3-Dichloropropene				<5	97020506	97/04/02	d
<5.0	trans-1,3-Dichloropropene				<5	97020506	97/04/02	d
<5.0	Ethylbenzene				8.3	97020506	97/04/02	d
<5.0	Methylene Chloride				<5	97020506	97/04/02	d
<5.0	1,1,2,2-Tetrachloroethane				<5	97020506	97/04/02	d
<5.0	Tetrachloroethene				<5	97020506	97/04/02	d,e
<5.0	Toluene				6.6	97020506	97/04/02	d
<5.0	1,1,1-Trichloroethane				<5	97020506	97/04/02	d
<5.0	1,1,2-Trichloroethane				<5	97020506	97/04/02	d
<5.0	Trichloroethene				<5	97020506	97/04/02	d
<5.0	Trichlorofluoromethane				<5	97020506	97/04/02	d
<5.0	m-Xylene & p-Xylene				16.5	97020506	97/04/02	d
<5.0	o-Xylene				8.8	97020506	97/04/02	d
<5.0	Vinyl Chloride				SN	97020506	97/04/02	d,g

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/28	97020497:507:518:568-574	GN970274 Site 2				
	EPA 624 OR 601/602							
<5.0	Benzene				<5	97020507	97/04/02	d
<5.0	Bromodichloromethane				<5	97020507	97/04/02	d
<5.0	Bromoform				<5	97020507	97/04/02	d
<5.0	Bromomethane				<5	97020507	97/04/02	d
<5.0	Carbon Tetrachloride				<5	97020507	97/04/02	d,e
<5.0	Chlorobenzene				<5	97020507	97/04/02	d
<5.0	Chloroethane				<5	97020507	97/04/02	d
<5.0	2-Chloroethylvinylether				<5	97020507	97/04/02	d
<5.0	Chloroform				<5	97020507	97/04/02	d
<5.0	Chloromethane				<5	97020507	97/04/02	d
<5.0	Dibromochloromethane				<5	97020507	97/04/02	d
<5.0	1,2-Dichlorobenzene				<5	97020507	97/04/02	d
<5.0	1,3-Dichlorobenzene				<5	97020507	97/04/02	d
<5.0	1,4-Dichlorobenzene				<5	97020507	97/04/02	d
<5.0	1,1-Dichloroethane				<5	97020507	97/04/02	d
<5.0	1,2-Dichloroethane				<5	97020507	97/04/02	d
<5.0	1,1-Dichloroethene				<5	97020507	97/04/02	d
<5.0	trans-1,2-Dichloroethene				<5	97020507	97/04/02	d
<5.0	1,2-Dichloropropane				<5	97020507	97/04/02	d
<5.0	cis-1,3-Dichloropropene				<5	97020507	97/04/02	d
<5.0	trans-1,3-Dichloropropene				<5	97020507	97/04/02	d
<5.0	Ethylbenzene				<5	97020507	97/04/02	d
<5.0	Methylene Chloride				<5	97020507	97/04/02	d
<5.0	1,1,2,2-Tetrachloroethane				<5	97020507	97/04/02	d
<5.0	Tetrachloroethene				<5	97020507	97/04/02	d,e
<5.0	Toluene				<5	97020507	97/04/02	d
<5.0	1,1,1-Trichloroethane				<5	97020507	97/04/02	d
<5.0	1,1,2-Trichloroethane				<5	97020507	97/04/02	d
<5.0	Trichloroethene				<5	97020507	97/04/02	d
<5.0	Trichlorofluoromethane				[redacted]	97020507	97/04/02	d
<5.0	m-Xylene & p-Xylene				<5	97020507	97/04/02	d
<5.0	o-Xylene				SN	97020507	97/04/02	d,h
<5.0	Vinyl Chloride				SN	97020507	97/04/02	d,h

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/28	97020508:	GN970275 Site 10				
	EPA 624 OR 601/602							
<5.0	Benzene				<50	97020508	97/04/02	d,i
<5.0	Bromodichloromethane				<50	97020508	97/04/02	d,i
<5.0	Bromoform				<50	97020508	97/04/02	d,i
<5.0	Bromomethane				<50	97020508	97/04/02	d,i
<5.0	Carbon Tetrachloride				<50	97020508	97/04/02	d,i
<5.0	Chlorobenzene				<50	97020508	97/04/02	d,i
<5.0	Chloroethane				<50	97020508	97/04/02	d,i
<5.0	2-Chloroethylvinylether				<50	97020508	97/04/02	d,i
<5.0	Chloroform				<50	97020508	97/04/02	d,i
<5.0	Chloromethane				<50	97020508	97/04/02	d,i
<5.0	Dibromochloromethane				<50	97020508	97/04/02	d,i
<5.0	1,2-Dichlorobenzene				<50	97020508	97/04/02	d,i
<5.0	1,3-Dichlorobenzene				<50	97020508	97/04/02	d,i
<5.0	1,4-Dichlorobenzene				<50	97020508	97/04/02	d,i
<5.0	1,1-Dichloroethane				<50	97020508	97/04/02	d,i
<5.0	1,2-Dichloroethane				<50	97020508	97/04/02	d,i
<5.0	1,1-Dichloroethene				<50	97020508	97/04/02	d,i
<5.0	trans-1,2-Dichloroethene				<50	97020508	97/04/02	d,i
<5.0	1,2-Dichloropropane				<50	97020508	97/04/02	d,i
<5.0	cis-1,3-Dichloropropene				<50	97020508	97/04/02	d,i
<5.0	trans-1,3-Dichloropropene				<50	97020508	97/04/02	d,i
<5.0	Ethylbenzene				<50	97020508	97/04/02	d,i
<5.0	Methylene Chloride				<50	97020508	97/04/02	d,i
<5.0	1,1,2,2-Tetrachloroethane				<50	97020508	97/04/02	d,i
<5.0	Tetrachloroethene				<50	97020508	97/04/02	d,i
<5.0	Toluene				<50	97020508	97/04/02	d,i
<5.0	1,1,1-Trichloroethane				<50	97020508	97/04/02	d,i
<5.0	1,1,2-Trichloroethane				<50	97020508	97/04/02	d,i
<5.0	Trichloroethene				<50	97020508	97/04/02	d,i
<5.0	Trichlorofluoromethane				<50	97020508	97/04/02	d,i
<5.0	m-Xylene & p-Xylene				<50	97020508	97/04/02	d,i
<5.0	o-Xylene				<50	97020508	97/04/02	d,i
<5.0	Vinyl Chloride				<50	97020508	97/04/02	d,i

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/28	97020581:	GN970277 Site 7				
	EPA 624 OR 601/602							
<5.0	Benzene				NT			
<5.0	Bromodichloromethane				NT			
<5.0	Bromoform				NT			
<5.0	Bromomethane				NT			
<5.0	Carbon Tetrachloride				NT			
<5.0	Chlorobenzene				NT			
<5.0	Chloroethane				NT			
<5.0	2-Chloroethylvinylether				NT			
<5.0	Chloroform				NT			
<5.0	Chloromethane				NT			
<5.0	Dibromochloromethane				NT			
<5.0	1,2-Dichlorobenzene				NT			
<5.0	1,3-Dichlorobenzene				NT			
<5.0	1,4-Dichlorobenzene				NT			
<5.0	1,1-Dichloroethane				NT			
<5.0	1,2-Dichloroethane				NT			
<5.0	1,1-Dichloroethene				NT			
<5.0	trans-1,2-Dichloroethene				NT			
<5.0	1,2-Dichloropropane				NT			
<5.0	cis-1,3-Dichloropropene				NT			
<5.0	trans-1,3-Dichloropropene				NT			
<5.0	Ethylbenzene				NT			
<5.0	Methylene Chloride				NT			
<5.0	1,1,2,2-Tetrachloroethane				NT			
<5.0	Tetrachloroethene				NT			
<5.0	Toluene				NT			
<5.0	1,1,1-Trichloroethane				NT			
<5.0	1,1,2-Trichloroethane				NT			
<5.0	Trichloroethene				NT			
<5.0	Trichlorofluoromethane				NT			
<5.0	m-Xylene & p-Xylene				NT			
<5.0	o-Xylene				NT			
<5.0	Vinyl Chloride				NT			

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

METALS

Wastewater Samples

(ug/L)

Method Detection Limit (mg/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
		97/03/25	97019797; 807; 834-40; 971	CN970228 & GN970228	6				
	Group F								
<0.030	Aluminum					0.056	97019797	97/04/03	
<0.003	Antimony					<0.003	97019797	97/04/03	
<0.005	Arsenic					<0.005	97019797	97/04/03	
<0.050	Barium					0.038	97019797	97/04/03	
<0.001	Beryllium					<0.0005	97019797	97/04/03	
<0.05	Boron					NT			
<0.001	Cadmium					0.003	97019797	97/04/03	
<1	Calcium					NT			
<0.01	Chromium					0.034	97019797	97/04/03	
<0.05	Cobalt					<0.025	97019797	97/04/03	
<0.02	Copper					0.030	97019797	97/04/03	
<0.03	Iron					0.561	97019797	97/04/03	
<0.02	Lead					0.006	97019797	97/04/03	
<1	Magnesium					NT			
<0.03	Manganese					NT			
<0.0002	Mercury					0.0003	97019797	97/04/03	
<0.03	Molybdenum					<0.030	97019797	97/04/03	
<0.03	Nickel					0.019	97019797	97/04/03	
<1	Potassium					NT			
<0.005	Selenium					<0.005	97019797	97/04/03	p
<0.01	Silver					<0.005	97019797	97/04/03	
<1	Sodium					NT			
<0.14	Strontium					0.300	97019797	97/04/03	
<0.001	Thallium					<0.001	97019797	97/04/03	
<0.21	Titanium					<0.025	97019797	97/04/03	
<0.05	Vanadium					NT			
<0.05	Zinc					0.067	97019797	97/04/03	
	EPA 8015 MOD (AFFF)								
<0.10	2(2-Butoxyetoxy)Ethanol					BIT	97019803		b
p *	Selenium (low recovery)					59.7%	97019797	97/04/03	

Method Detection Limit (mg/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
		97/03/25	97019792; 798; 804; 808; 841-847	CN970229 & GN970229	7				
	Group F								
<0.030	Aluminum					0.205	97019798	97/04/03	
<0.003	Antimony					0.004	97019798	97/04/03	
<0.005	Arsenic					<0.005	97019798	97/04/03	
<0.050	Barium					0.033	97019798	97/04/03	
<0.001	Beryllium					<0.0005	97019798	97/04/03	
<0.05	Boron					NT			
<0.001	Cadmium					0.006	97019798	97/04/03	
<1	Calcium					NT			
<0.01	Chromium					<0.005	97019798	97/04/03	
<0.05	Cobalt					<0.025	97019798	97/04/03	
<0.02	Copper					0.022	97019798	97/04/03	
<0.03	Iron					0.55	97019798	97/04/03	
<0.02	Lead					0.011	97019798	97/04/03	
<1	Magnesium					NT			
<0.03	Manganese					NT			
<0.0002	Mercury					0.0002	97019798	97/04/03	
<0.03	Molybdenum					<0.030	97019798	97/04/03	
<0.03	Nickel					0.011	97019798	97/04/03	
<1	Potassium					NT			
<0.005	Selenium					<0.005	97019798	97/04/03	p
<0.01	Silver					<0.005	97019798	97/04/03	
<1	Sodium					NT			
<0.14	Strontium					0.325	97019798	97/04/03	
<0.001	Thallium					<0.001	97019798	97/04/03	
<0.21	Titanium					<0.025	97019798	97/04/03	
<0.05	Vanadium					NT			
<0.05	Zinc					0.058	97019798	97/04/03	
	EPA 8015 MOD (AFFF)								
<0.10	2(2-Butoxyetoxy)Ethanol					<0.1	97019804	97/04/02	
p *	Selenium (low recovery)								

Method Detection Limit (mg/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
		97/03/25	97019793; 799; 804; 809; 848-854	CN970230 & GN970230	10				
	Group F								
<0.030	Aluminum					0.285	97019799	97/04/03	
<0.003	Antimony					<0.003	97019799	97/04/03	
<0.005	Arsenic					<0.005	97019799	97/04/03	
<0.050	Barium					0.035	97019799	97/04/03	
<0.001	Beryllium					0.0005	97019799	97/04/03	
<0.05	Boron					NT			
<0.001	Cadmium					<0.001	97019799	97/04/03	
<1	Calcium					NT			
<0.01	Chromium					0.005	97019799	97/04/03	
<0.05	Cobalt					<0.025	97019799	97/04/03	
<0.02	Copper					<0.010	97019799	97/04/03	
<0.03	Iron					2.86	97019799	97/04/03	
<0.02	Lead					0.008	97019799	97/04/03	
<1	Magnesium					NT			
<0.03	Manganese					NT			
<0.0002	Mercury					0.0003	97019799	97/04/03	
<0.03	Molybdenum					<0.030	97019799	97/04/03	
<0.03	Nickel					0.023	97019799	97/04/03	
<1	Potassium					NT			
<0.005	Selenium					<0.005	97019799	97/04/03	p
<0.01	Silver					<0.005	97019799	97/04/03	
<1	Sodium					NT			
<0.14	Strontium					0.501	97019799	97/04/03	
<0.001	Thallium					<0.001	97019799	97/04/03	
<0.21	Titanium					<0.025	97019799	97/04/03	
<0.05	Vanadium					NT			
<0.05	Zinc					0.046	97019799	97/04/03	
	EPA 8015 MOD (AFFF)								
<0.10	2(2-Butoxyetoxy)Ethanol					NT			
p *	Selenium (low recovery)					35.2%	97019799	97/04/03	

Method Detection Limit (mg/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
		97/03/25	97019794; 800; 805; 810; 855-57	CN970231 & GN970231	12				
	Group F								
<0.030	Aluminum					3.47	97019800	97/04/03	
<0.003	Antimony					0.351	97019800	97/04/03	
<0.005	Arsenic					0.005	97019800	97/04/03	
<0.050	Barium					0.379	97019800	97/04/03	
<0.001	Beryllium					0.0013	97019800	97/04/03	
<0.05	Boron					NT			
<0.001	Cadmium					0.891	97019800	97/04/03	
<1	Calcium					NT			
<0.01	Chromium					0.659	97019800	97/04/03	
<0.05	Cobalt					<0.025	97019800	97/04/03	
<0.02	Copper					4.21	97019800	97/04/03	
<0.03	Iron					6.09	97019800	97/04/03	
<0.02	Lead					2	97019800	97/04/03	
<1	Magnesium					NT			
<0.03	Manganese					NT			
<0.0002	Mercury					0.0005	97019800	97/04/03	
<0.03	Molybdenum					0.276	97019800	97/04/03	
<0.03	Nickel					0.712	97019800	97/04/03	
<1	Potassium					NT			
<0.005	Selenium					<0.005	97019800	97/04/03	p
<0.01	Silver					0.152	97019800	97/04/03	
<1	Sodium					NT			
<0.14	Strontium					0.347	97019800	97/04/03	
<0.001	Thallium					0.092	97019800	97/04/03	
<0.21	Titanium					0.079	97019800	97/04/03	
<0.05	Vanadium					NT			
<0.05	Zinc					6.5	97019800	97/04/03	
	EPA 8015 MOD (AFFF)								
<0.10	2(2-Butoxyetoxy)Ethanol					<0.1	97019805	97/04/02	
p *	Selenium (low recovery)					3.6%	97019800	97/04/03	

Method Detection Limit (mg/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
		97/03/25	97019801; 858-64	CN970232 & GN970232	9				
	Group F								
<0.030	Aluminum					0.948	97019801	97/04/03	
<0.003	Antimony					0.005	97019801	97/04/03	
<0.005	Arsenic					0.02	97019801	97/04/03	
<0.050	Barium					0.07	97019801	97/04/03	
<0.001	Beryllium					0.0094	97019801	97/04/03	
<0.05	Boron					NT			
<0.001	Cadmium					0.001	97019801	97/04/03	
<1	Calcium					NT			
<0.01	Chromium					0.01	97019801	97/04/03	
<0.05	Cobalt					<0.025	97019801	97/04/03	
<0.02	Copper					0.025	97019801	97/04/03	
<0.03	Iron					18.2	97019801	97/04/03	
<0.02	Lead					0.006	97019801	97/04/03	
<1	Magnesium					NT			
<0.03	Manganese					NT			
<0.0002	Mercury					0.0004	97019801	97/04/03	
<0.03	Molybdenum					<0.030	97019801	97/04/03	
<0.03	Nickel					0.067	97019801	97/04/03	
<1	Potassium					NT			
<0.005	Selenium					<0.005	97019801	97/04/03	
<0.01	Silver					0.007	97019801	97/04/03	
<1	Sodium					NT			
<0.14	Strontium					0.761	97019801	97/04/03	
<0.001	Thallium					<0.001	97019801	97/04/03	
<0.21	Titanium					0.03	97019801	97/04/03	
<0.05	Vanadium					NT			
<0.05	Zinc					0.128	97019801	97/04/03	
	EPA 8015 MOD (AFFF)								
<0.10	2(2-Butoxyetoxy)Ethanol					NT			
p *	Selenium (low recovery)								

Method Detection Limit (mg/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Site	Result	OE NUMBER	Date	Q
		97/03/25	97019795; 806; 811; 865	CN970249 & GN970249	8				
	Group F								
<0.030	Aluminum					NT			
<0.003	Antimony					NT			
<0.005	Arsenic					NT			
<0.050	Barium					NT			
<0.001	Beryllium					NT			
<0.05	Boron					NT			
<0.001	Cadmium					NT			
<1	Calcium					NT			
<0.01	Chromium					NT			
<0.05	Cobalt					NT			
<0.02	Copper					NT			
<0.03	Iron					NT			
<0.02	Lead					NT			
<1	Magnesium					NT			
<0.03	Manganese					NT			
<0.0002	Mercury					NT			
<0.03	Molybdenum					NT			
<0.03	Nickel					NT			
<1	Potassium					NT			
<0.005	Selenium					NT			
<0.01	Silver					NT			
<1	Sodium					NT			
<0.14	Strontium					NT			
<0.001	Thallium					NT			
<0.21	Titanium					NT			
<0.05	Vanadium					NT			
<0.05	Zinc					NT			
	EPA 8015 MOD (AFFF)								
<0.10	2(2-Butoxyetoxy)Ethanol					<0.1	97019806	97/04/02	
p *	Selenium (low recovery)								

WHITEMAN PROJECT 17

DATA SUMMARY FORM

COMMENTS

Wastewater Samples

< - Signifies none detected and the detection limits.
SN : SEE COMMENT
ABS : Absent
NSR : No Sample Received.

Comment Code

a: HOLD TIME EXCEEDED.
b: BROKEN IN TRANSIT (BIT)
c: All pesticides (EPA METHOD 625) were absent qualitatively.
d: Comments for OEHD Sample #: 97019791 SAMPLE CONTAINED TRACES OF 4-HYDROXY-4-METHYL PENTANONE AND SILICIC ACID.
e: Comments for OEHD Sample #: 97019792 SAMPLE CONTAINED A SMALL QUANTITY OF FUEL-TYPE HYDROCARBON, MOST LIKELY JET FUEL.
f: Comments for OEHD Sample #: 97019793 SAMPLE CONTAINED A LARGE AMOUNT OF HYDROCARBONS TYPICAL OF JET FUEL.
g: Comments for OEHD Sample #: 97019794 SAMPLE CONTAINED LARGE QUANTITIES OF UNKNOW HYDROCARBONS, POSSIBLY WEATHERED MOTOR OIL.
h: Comments for OEHD Sample #: 97019795 SAMPLE WAS BROKEN IN TRANSIT (BIT).
i: Comments for OEHD Sample #: 97019797 SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ORGANIC OR ALKALINE COMPOSITION FOR SELENIUM 59.7%.
j: Comments for OEHD Sample #: 97019799 SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ORGANIC OR ALKALINE COMPOSITION FOR SELENIUM 35.2%.
k: Comments for OEHD Sample #: 97019800 SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ORGANIC OR ALKALINE COMPOSITION FOR SELENIUM 3.6%.
l: Comments for OEHD Sample #: 97019801 SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ALKALINE COMPOSITION OF SAMPLE FOR SELENIUM 41.3% AND THALLIUM 13%.
m: Comments for OEHD Sample #: 97019808 SAMPLE ALSO IDENTIFIED VINYL CHLORIDE AT APPROXIMATELY 2.8 UG/L, 1,1,1-TRICHLOROETHANE AT 1.4 UG/L, TOLUENE AT 1.7 UG/L AND ETHYLBENZENE AT 2.5 UG/L. OTHER FUEL HYDROCARBONS ARE PRESENT.
n: Comments for OEHD Sample #: 97019809 SAMPLE REQUIRED DILUTION FOR SAMPLE ANALYSIS, RESULTS HAVE BEEN ADJUSTED. OTHER FUEL HYDROCARBONS ARE PRESENT.
o: Comments for OEHD Sample #: 97019810 ALSO IDENTIFIED M AND/OR P XYLENE AT APPROXIMATELY 2.20 UG/L. OTHER FUEL HYDROCARBONS ARE PRESENT.
p: SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ORGANIC OR ALKALINE COMPOSITION FOR SELENIUM AND/OR THALLIUM.
q: Comments for OEHD Sample #: 97019811 OTHER FUEL HYDROCARBONS PRESENT.
r: Comments for OEHD Sample #: 97019849 LARGE AMOUNTS OF SUBSTITUTED SILOXANE COMPOUNDS (SYNTHETIC HYDROCARBONS)?
s: Comments for OEHD Sample #: 97019849 TRACE AMOUNTS OF JP-8.

Reviewed By: Victoria S. Dunovant

VICTORIA S. DUNOVANT, Lt Col, USAF, BSC
Chief, Environmental Chemistry Branch

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

INORGANIC

Wastewater Samples

(mg/L)

Method Detection Limit (mg/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/26	97020048; 56; 65; 71; 84-90;	CN970240 & GN970240	SITE 6			
		97/03/26	97020049; 66; 72; 91;	CN970241 & GN970241	SITE 7			
		97/03/26	97020050; 58; 67; 74; 96-102;	CN970243 & GN970243	SITE 9			
		97/03/26	97020054; 62; 78; 121-127;	CN970247 & GN970247	SITE 10			
		97/03/26	97020055; 63; 79; 128-134;	CN970248 & GN970248	SITE 11			
		97/03/26	97020057; 73; 92-95;	CN970242 & GN970242	SITE 12			
<10	COD				21	97020084	97/04/01	
					<10	97020096	97/04/01	
					CBC	97020121	97/04/01	I
					<10	97020128	97/04/01	
					149	97020092	97/04/01	
<1	Total Organic Carbon				6	97020084	97/04/01	
					11	97020096	97/04/01	
					CBC	97020121	97/04/01	I
					18	97020128	97/04/01	
					33	97020092	97/04/01	
	Group B							
<0.3	Oil & Grease				83	97020085	97/04/08	
					7.04	97020091	97/04/08	
					1.4	97020097	97/04/08	
					24.8	97020122	97/04/08	
					11.9	97020129	97/04/08	
					15.2	97020093	97/04/08	
<1	TPH				83	97020085	97/04/08	
					3.68	97020091	97/04/08	
					1.12	97020097	97/04/08	
					23.2	97020122	97/04/08	m
					11.4	97020129	97/04/08	
					11.2	97020093	97/04/08	
	Group C							
<0.2	Ammonia				<0.2	97020086	97/04/02	
					<0.2	97020098	97/04/04	
					0.65	97020123	97/04/04	
					<0.2	97020130	97/04/04	
					5	97020094	97/04/04	
	Kjeldahl Nitrogen				0.8	97020086	97/04/02	
					0.8	97020098	97/04/04	
					3	97020123	97/04/04	
					1.3	97020130	97/04/04	
					10.8	97020094	97/04/04	
<0.1	Nitrate+Nitrite				0.12	97020086	97/04/02	
					0.12	97020098	97/04/04	
					0.85	97020123	97/04/04	
					0.4	97020130	97/04/04	
					1.3	97020094	97/04/04	
	Phosphate, Ortho				0.15	97020086	97/04/02	
					2.6	97020098	97/04/04	
					<0.1	97020123	97/04/04	
					<0.1	97020130	97/04/04	
					1.7	97020094	97/04/04	
<0.10	Phosphorus, Total				0.22	97020086	97/04/02	
					3.15	97020098	97/04/04	
					0.31	97020123	97/04/04	
					<0.1	97020130	97/04/04	
					1.95	97020094	97/04/04	
<0.1	**Group D**							
<0.005	Cyanide, Total				<0.005	97020087	97/04/01	
					<0.005	97020099	97/04/01	
					<0.005	97020124	97/04/01	
					<0.005	97020131	97/04/01	
					NT			
	Group E							
<10 ug/L	Phenols				<10	97020088	97/04/01	
					<10	97020100	97/04/01	
					CBC	97020125	97/04/01	n
					<10	97020132	97/04/01	
					NT			
	Group G							
	Acidity, Total				NT			
					NT			
					NT			
					NT			
					NT			
	Alkalinity, Total				NT			
					NT			
					NT			
					NT			
					NT			
	Bromide				NT			
					NT			
					NT			
					NT			
					NT			
<1	Chloride				38.7	97020089	97/03/31	
					90	97020101	97/03/31	
					9.5	97020126	97/03/28	
					20.3	97020133	97/03/28	
					44.2	97020095	97/03/31	
units	Color				NT			
					NT			
					NT			
					NT			
					NT			
	Langlier Index				NT			
					NT			
					NT			
					NT			
					NT			
<1	Residue, Total				NT			
					NT			
					NT			
					NT			
					NT			
<0.2 mL/L	Residue, Settleable				<0.2	97020089	97/03/31	a
					8	97020101	97/03/31	a
					<0.2	97020126	97/03/28	a
					0.4	97020133	97/03/28	a
					<0.2	97020095	97/03/31	a
<1	Residue, Filterable				340	97020089	97/03/31	
					780	97020101	97/03/31	
					602	97020126	97/03/28	
					656	97020133	97/03/28	
					550	97020095	97/03/31	
<1	Residue, Nonfilterable				15	97020089	97/03/31	
					257	97020101	97/03/31	
					10	97020126	97/03/28	
					14	97020133	97/03/28	
					14	97020095	97/03/31	
<1	Residue, Volatile				NT			
					NT			
					NT			
					NT			
					NT			
	Silica				NT			
					NT			
					NT			
					NT			
					NT			
umhos	Specific Conductance				518	97020089	97/03/31	
					1044	97020101	97/03/31	
					797	97020126	97/03/28	
					891	97020133	97/03/28	
					835	97020095	97/03/31	
<1	Sulfates				663	97020089	97/03/31	
					266	97020101	97/03/31	
					167.5	97020126	97/03/28	
					250.4	97020133	97/03/28	
					129.4	97020095	97/03/31	
<0.1	Sulfides				0.1	97020090	97/04/07	a
					<0.1	97020102	97/04/07	a
					<0.1	97020127	97/04/07	a
					0.2	97020134	97/04/07	a
					NT			
<0.1	Surfactants				0.2	97020089	97/03/31	a
					0.7	97020101	97/03/31	a
					0.14	97020126	97/03/28	a
					<0.1	97020133	97/03/28	a
					13	97020095	97/03/31	a
units	Turbidity				NT			
					NT			
					NT			
					NT			
					NT			
<1	Volatile Suspended Solids				6	97020089	97/03/31	
					35	97020101	97/03/31	
					6	97020126	97/03/28	
					7	97020133	97/03/28	
					4	97020095	97/03/31	

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Date Collected	97/03/26				97/03/26				97/03/26				97/03/26				97/03/26				97/03/26			
	Sample Numbers	97020048; 56; 65; 71; 84-90;				97020049; 66; 72; 91;				97020050; 58; 67; 74; 96-102;				97020054; 62; 78; 121-127;				97020055; 63; 79; 128-134;				97020057; 73; 92-95;			
	Tracking Numbers	CN970240 & GN970240				CN970241 & GN970241				CN970243 & GN970243				CN970247 & GN970247				CN970248 & GN970248				CN970242 & GN970242			
		SITE 6				SITE 7				SITE 9				SITE 10				SITE 11				SITE 12			
	EPA 624 OR 601/602																								
<5.0	Benzene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Bromodichloromethane	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Bromoform	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Bromomethane	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Carbon Tetrachloride	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Chlorobenzene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Chloroethane	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	2-Chloroethylvinylether	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Chloroform	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Chloromethane	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Dibromochloromethane	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	1,2-Dichlorobenzene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	1,3-Dichlorobenzene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	1,4-Dichlorobenzene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	1,1-Dichloroethane	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	1,2-Dichloroethane	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	1,1-Dichloroethene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	trans-1,2-Dichloroethene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	1,2-Dichloropropane	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	cis-1,3-Dichloropropene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	trans-1,3-Dichloropropene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Ethylbenzene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Methylene Chloride	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	1,1,2,2-Tetrachloroethane	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Tetrachloroethene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Toluene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	1,1,1-Trichloroethane	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	1,1,2-Trichloroethane	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Trichloroethene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Trichlorofluoromethane	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	m-Xylene & p-Xylene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	o-Xylene	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b
<5.0	Vinyl Chloride	<5	97020071	97/03/31		NSR	97020072		j	<5	97020074	97/03/31		<100	97020078	97/03/31	b,k	<5	97020079	97/03/31	b,k	<5	97020073	97/03/31	b

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	SITE 6 Result	OE NUMBER	Date	Q	SITE 7 Result	OE NUMBER	Date	Q	SITE 9 Result	OE NUMBER	Date	Q	SITE 10 Result	OE NUMBER	Date	Q	SITE 11 Result	OE NUMBER	Date	Q	SITE 12 Result	OE NUMBER	Date	Q
	Date Collected	97/03/26				97/03/26				97/03/26				97/03/26				97/03/26				97/03/26			
	Sample Numbers	97020048; 56; 65; 71; 84-90;				97020049; 66; 72; 91;				97020050; 58; 67; 74; 96-102;				97020054; 62; 78; 121-127;				97020055; 63; 79; 128-134;				97020057; 73; 92-95;			
	Tracking Numbers	CN970240 & GN970240				CN970241 & GN970241				CN970243 & GN970243				CN970247 & GN970247				CN970248 & GN970248				CN970242 & GN970242			
	EPA 625																								
<5	Acenaphthene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Acenaphthylene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
	Aldrin	ABSENT	97020048	97/03/31	d,e	ABSENT	97020049	970402	d,f	ABSENT	97020050	97/03/31	d,g	ABSENT	97020054	97/03/31	d,h	ABSENT	97020055	97/03/31	d,i	SEE EPA METHOD608			
<5	Anthracene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
	Aroclor 1260	ABSENT	97020048	97/03/31	d,e	ABSENT	97020049	970402	d,f	ABSENT	97020050	97/03/31	d,g	ABSENT	97020054	97/03/31	d,h	ABSENT	97020055	97/03/31	d,i	SEE EPA METHOD608			
<5	Benzidine	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Benzo(a)anthracene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Benzo(a)pyrene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Benzo(b)fluoranthene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Benzo(g,h,i)perylene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Benzo(k)fluoranthene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
	beta-BHC	ABSENT	97020048	97/03/31	d,e	ABSENT	97020049	970402	d,f	ABSENT	97020050	97/03/31	d,g	ABSENT	97020054	97/03/31	d,h	ABSENT	97020055	97/03/31	d,i	SEE EPA METHOD608			
	delta-BHC	ABSENT	97020048	97/03/31	d,e	ABSENT	97020049	970402	d,f	ABSENT	97020050	97/03/31	d,g	ABSENT	97020054	97/03/31	d,h	ABSENT	97020055	97/03/31	d,i	SEE EPA METHOD608			
<5	Bis(2-chloro ethoxy)methane	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Bis(2-chloro ethyl)ether	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Bis(2-chloroisopropyl)ether	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Bis(2-ethylhexyl)phthalate	51.9	97020048	97/03/31	e	<10	97020049	970402	f	10.9	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	4-Bromophenyl Phenyl Ether	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Butylbenzylphthalate	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
	Chlordane	ABSENT	97020048	97/03/31	d,e	ABSENT	97020049	970402	d,f	ABSENT	97020050	97/03/31	d,g	ABSENT	97020054	97/03/31	d,h	ABSENT	97020055	97/03/31	d,i				
<5	4-chloro-3-methyl Phenol	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	2-chloronaphthalene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	2-chlorophenol	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	4-chlorophenyl Phenyl Ether	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Chrysene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
	4,4-DDD	ABSENT	97020048	97/03/31	d,e	ABSENT	97020049	970402	d,f	ABSENT	97020050	97/03/31	d,g	ABSENT	97020054	97/03/31	d,h	ABSENT	97020055	97/03/31	d,i	SEE EPA METHOD608			
	4,4-DDE	ABSENT	97020048	97/03/31	d,e	ABSENT	97020049	970402	d,f	ABSENT	97020050	97/03/31	d,g	ABSENT	97020054	97/03/31	d,h	ABSENT	97020055	97/03/31	d,i	SEE EPA METHOD608			
	4,4-DDT	ABSENT	97020048	97/03/31	d,e	ABSENT	97020049	970402	d,f	ABSENT	97020050	97/03/31	d,g	ABSENT	97020054	97/03/31	d,h	ABSENT	97020055	97/03/31	d,i	SEE EPA METHOD608			
	Dieldrin	ABSENT	97020048	97/03/31	d,e	ABSENT	97020049	970402	d,f	ABSENT	97020050	97/03/31	d,g	ABSENT	97020054	97/03/31	d,h	ABSENT	97020055	97/03/31	d,i	SEE EPA METHOD608			
<5	Dibenzo(a,h)anthracene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	1,2-Dichlorobenzene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	1,3-Dichlorobenzene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	1,4-Dichlorobenzene	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	3,3-Dichlorobenzidine	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	2,4-Dichlorophenol	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Diethylphthalate	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	2,4-Dimethylphenol	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Dimethylphthalate	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Di-n-Butylphthalate	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Di-n-Octylphthalate	16.2	97020048	97/03/31	e	16.2	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	4,6-Dinitro-2-Methylphenol	<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			

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DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS (cont'd)

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	SITE 6 Result	SITE 6 OE NUMBER	SITE 6 Date	SITE 6 Q	SITE 7 Result	SITE 7 OE NUMBER	SITE 7 Date	SITE 7 Q	SITE 9 Result	SITE 9 OE NUMBER	SITE 9 Date	SITE 9 Q	SITE 10 Result	SITE 10 OE NUMBER	SITE 10 Date	SITE 10 Q	SITE 11 Result	SITE 11 OE NUMBER	SITE 11 Date	SITE 11 Q	SITE 12 Result	SITE 12 OE NUMBER	SITE 12 Date	SITE 12 Q
		97/03/26	97020048; 56; 65; 71; 84-90;	CN970240 & GN970240					97/03/26	97020049; 66; 72; 91;	CN970241 & GN970241		97/03/26	97020050; 58; 67; 74; 96-102;	CN970243 & GN970243		97/03/26	97020054; 62; 78; 121-127;	CN970247 & GN970247		97/03/26	97020055; 63; 79; 128-134;	CN970248 & GN970248		97/03/26	97020057; 73; 92-95;	CN970242 & GN970242	
<5	2,4-Dinitrophenol				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	2,6-Dinitrotoluene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	2,4-Dinitrotoluene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Fluoranthene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Fluorene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Hexachlorobenzene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Hexachlorobutadiene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Hexachlorocyclopentadiene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Hexachloroethane				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Indeno(1,2,3-c,d)pyrene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Isophorone				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
	4,4-Methylenedianiline				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Naphthalene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
	N-Nitrosodi-n-Propylamine				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	98.5	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	N-Nitrosodiphenylamine				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Nitrobenzene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	2-Nitrophenol				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	4-Nitrophenol				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Pentachlorophenol				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Phenanthrene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Phenol				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	Pyrene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
	Toxaphene				ABSENT	97020048	97/03/31	d,e	ABSENT	97020049	970402	d,f	ABSENT	97020050	97/03/31	d,g	ABSENT	97020054	97/03/31	d,h	ABSENT	97020055	97/03/31	d,i	SEE EPA METHOD608			
<5	1,2,4-Trichlorobenzene				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			
<5	2,4,6-Trichlorophenol				<10	97020048	97/03/31	e	<10	97020049	970402	f	<10	97020050	97/03/31	g	<27	97020054	97/03/31	h	<10	97020055	97/03/31	i	NT			

WHITEMAN PROJECT 17

DATA SUMMARY FORM

METALS

Wastewater Samples

(mg/L)

Method Detection Limit (mg/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Date Collected	97/03/26				97/03/26				97/03/26				97/03/26				97/03/26				97/03/26			
	Sample Numbers	97020048; 56; 65; 71; 84-90;				97020049; 66; 72; 91;				97020050; 58; 67; 74; 96-102;				97020054; 62; 78; 121-127;				97020055; 63; 79; 126-134;				97020057; 73; 92-95;			
	Tracking Numbers	CN970240 & GN970240				CN970241 & GN970241				CN970243 & GN970243				CN970247 & GN970247				CN970248 & GN970248				CN970242 & GN970242			
		SITE 6				SITE 7				SITE 9				SITE 10				SITE 11				SITE 12			
	Group F																								
<0.030	Aluminum	0.070	97020056	97/04/03		NT				0.925	97020058	97/04/03		0.141	97020062	97/04/03		0.025	97020063	97/04/03		0.103	97020057	97/04/03	
<0.003	Antimony	<0.003	97020056	97/04/03		NT				<0.003	97020058	97/04/03		<0.003	97020062	97/04/03		<0.003	97020063	97/04/03		0.008	97020057	97/04/03	
<0.005	Arsenic	<0.005	97020056	97/04/03		NT				0.01	97020058	97/04/03		<0.005	97020062	97/04/03		<0.005	97020063	97/04/03		<0.005	97020057	97/04/03	
<0.050	Barium	0.046	97020056	97/04/03		NT				0.062	97020058	97/04/03		0.038	97020062	97/04/03		0.038	97020063	97/04/03		0.04	97020057	97/04/03	
<0.001	Beryllium	<0.0005	97020056	97/04/03		NT				0.004	97020058	97/04/03		<0.0005	97020062	97/04/03		<0.0005	97020063	97/04/03		<0.0005	97020057	97/04/03	
<0.05	Boron	NT				NT				NT				NT				NT				NT			
<0.001	Cadmium	0.002	97020056	97/04/03		NT				0.001	97020058	97/04/03		<0.001	97020062	97/04/03		<0.001	97020063	97/04/03		0.014	97020057	97/04/03	
<1	Calcium	NT				NT				NT				NT				NT				NT			
<0.01	Chromium	<0.005	97020056	97/04/03		NT				0.041	97020058	97/04/03		<0.005	97020062	97/04/03		<0.005	97020063	97/04/03		<0.005	97020057	97/04/03	
<0.05	Cobalt	<0.025	97020056	97/04/03		NT				<0.025	97020058	97/04/03		<0.025	97020062	97/04/03		<0.025	97020063	97/04/03		<0.025	97020057	97/04/03	
<0.02	Copper	0.028	97020056	97/04/03		NT				0.021	97020058	97/04/03		<0.010	97020062	97/04/03		<0.010	97020063	97/04/03		0.088	97020057	97/04/03	
<0.03	Iron	0.498	97020056	97/04/03		NT				52.7	97020058	97/04/03		0.674	97020062	97/04/03		0.1	97020063	97/04/03		0.27	97020057	97/04/03	
<0.02	Lead	0.005	97020056	97/04/03		NT				0.004	97020058	97/04/03		0.005	97020062	97/04/03		<0.001	97020063	97/04/03		0.022	97020057	97/04/03	
<1	Magnesium	NT				NT				NT				NT				NT				NT			
<0.03	Manganese	NT				NT				NT				NT				NT				NT			
<0.0002	Mercury	0.0005	97020056	97/04/03		NT				0.0003	97020058	97/04/03		0.0011	97020062	97/04/03		0.0006	97020063	97/04/03		0.0003	97020057	97/04/03	
<0.03	Molybdenum	<0.030	97020056	97/04/03		NT				<0.030	97020058	97/04/03		<0.030	97020062	97/04/03		<0.030	97020063	97/04/03		<0.030	97020057	97/04/03	
<0.03	Nickel	<0.010	97020056	97/04/03		NT				0.162	97020058	97/04/03		0.012	97020062	97/04/03		<0.010	97020063	97/04/03		0.012	97020057	97/04/03	
<1	Potassium	NT				NT				NT				NT				NT				NT			
<0.005	Selenium	0.016	97020056	97/04/03	c, *	NT				<0.005	97020058	97/04/03	c, *	<0.005	97020062	97/04/03	c, *	<0.005	97020063	97/04/03	c, *	<0.005	97020057	97/04/03	c, *
<0.01	Silver	0.006	97020056	97/04/03		NT				<0.005	97020058	97/04/03		<0.005	97020062	97/04/03		<0.005	97020063	97/04/03		<0.005	97020057	97/04/03	
<1	Sodium	NT				NT				NT				NT				NT				NT			
<0.14	Strontium	0.321	97020056	97/04/03		NT				0.628	97020058	97/04/03		0.415	97020062	97/04/03		0.576	97020063	97/04/03		0.391	97020057	97/04/03	
<0.001	Thallium	<0.001	97020056	97/04/03		NT				<0.001	97020058	97/04/03		<0.001	97020062	97/04/03		<0.001	97020063	97/04/03		<0.001	97020057	97/04/03	
<0.21	Titanium	<0.025	97020056	97/04/03		NT				<0.025	97020058	97/04/03		<0.025	97020062	97/04/03		<0.025	97020063	97/04/03		<0.025	97020057	97/04/03	
<0.05	Vanadium	NT				NT				NT				NT				NT				NT			
<0.05	Zinc	0.044	97020056	97/04/03		NT				0.216	97020058	97/04/03		0.031	97020062	97/04/03		0.14	97020063	97/04/03		0.092	97020057	97/04/03	
	8015 MOD (AFFF)																								
<0.10 mg/L	2(2-Butoxyetoxy)Ethanol	<0.1	97020065	97/04/02		0.597	97020066	97/04/02		<0.1	97020067	97/04/02		NT				NT				NT			
*	Selenium (low recoveries)	38.2	97020056	97/04/03						9.5%	97020058	97/04/03		25%	97020062	97/04/03		24.3%	97020063	97/04/03		21%	97020057	97/04/03	
**	Thallium (low recovery)																								

DATA SUMMARY FORM
COMMENTS
Wastewater Samples

< - Signifies none detected and the detection limits.
SN : SEE COMMENT.
ABS : Absent

Comment Code

a: HOLD TIME EXCEEDED.

b: OTHER FUEL HYDROCARBONS ARE PRESENT.

c: SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ORGANIC OR ALKALINE COMPOSITION SELENIUM AND/OR THALLIUM.

d: All pesticides (EPA METHOD 625) were absent qualitatively.

e: Comments for OEHD Sample #: 97020048 HEAVY EMULSION. SAMPLE CONTAINED TRACES OF FUEL-TYPE HYDROCARBONS.

f: Comments for OEHD Sample #: 97020049 HEAVY EMULSION. SAMPLE CONTAINED MODERATE AMOUNTS OF HEXYLENE GLYCOL AND 3,3-DIMETHYL-2-BUTANOL.

g: Comments for OEHD Sample #: 97020050 HEAVY EMULSION. SAMPLE CONTAINED LARGE AMOUNTS OF FUEL-TYPE HYDROCARBONS AND MODERATE AMOUNTS OF BUTYLATED HYDROXY TOLUENE, SILICIC ACID, AND PHOSPHORIC ACID.

h: Comments for OEHD Sample #: 97020054 SAMPLE CONTAINED LARGE FUEL LAYER. DETECTION LIMITS ADJUSTED TO REFLECT CALCULATION FOR SAMPLE SIZE OF 375 ml.

i: Comments for OEHD Sample #: 97020055 SAMPLE CONTAINED A MODERATE AMOUNT OF JET FUEL (HYDROCARBONS C12-C16)

j: Coded Results for OEHD Sample #: 97020072 CANCELLED NSR : NO SAMPLE RECEIVED

k: Comments for OEHD Sample #: 97020078 & 97020079 DILUTION WAS REQUIRED FOR SAMPLE ANALYSIS, RESULTS HAVE BEEN ADJUSTED

l: Coded Results for OEHD Sample #: 97020121 CANCELLED CBC : CANCELLED BY CHEMIST
SAMPLE WAS CANCELLED BECAUSE OF THE NATURE OF THE SAMPLE BEING PRIMARILY FUEL.

m: Comments for OEHD Sample #: 97020122 SMALL AMOUNTS OF JP-8

n: Coded Results for OEHD Sample #: 97020125 CANCELLED CBC : CANCELLED BY CHEMIST
SAMPLE COULD NOT BE ANALYZED FOR PHENOL BECAUSE IT WAS MOSTLY OIL AND FUEL

Reviewed By: Victoria S. Dunovant

VICTORIA S. DUNOVANT, Lt Col, USAF, BSC
Chief, Environmental Chemistry Branch

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ARMSTRONG LABORATORY

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

INORGANIC

Wastewater Samples

(mg/L)

Method Detection Limit (mg/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/27	97020311; 321-25; 369;	CN970254 & GN970254	SITE 6			
		97/03/27	97020312; 326-331; 370;	CN970255 & GN970255	SITE 7			
		97/03/27	97020313; 332-36; 371;	CN970256 & GN970256	SITE 9			
		[illegible]	[illegible]	CN970260 & GN970260	[illegible]			
		97/03/27	97020316; 346-49; 373;	CN970261 & GN970261	SITE 11			
		97/03/27	97020314; 339-341;	CN970258 & GN970258	SITE 12			
	Group A							
<10	COD				<10	97020321	97/04/04	
					238	97020326	97/04/04	
					<10	97020332	97/04/04	
					24200	97020342	97/04/07	h,l
					<10	97020346	97/04/07	
					65	97020339	97/04/04	
<1	Total Organic Carbon				4.4	97020321	97/04/04	
					46.9	97020326	97/04/04	
					7.9	97020332	97/04/04	
					CBC	97020342	97/04/07	h,l
					3.9	97020346	97/04/07	
					22.1	97020339	97/04/04	
	Group B							
<0.3	Oil & Grease				2.8	97020322	97/04/08	
					5.1	97020327	97/04/08	
					2.48	97020333	97/04/08	
					<5.66	97020343	97/04/08	
					12	97020347	97/04/08	
					7.36	97020340	97/04/08	
<1	TPH				1.84	97020322	97/04/08	
					2.2	97020327	97/04/08	
					2.32	97020333	97/04/08	
					54.4	97020343	97/04/08	
					1.12	97020347	97/04/08	
					7.34	97020340	97/04/08	
	Group C							
<0.2	Ammonia				<0.2	97020323	97/04/04	
					0.2	97020328	97/04/04	
					<0.2	97020334	97/04/04	
					0.8	97020344	97/04/04	
					<0.2	97020348	97/04/04	
					5.85	97020341	97/04/04	
	Kjeldahl Nitrogen				1.0	97020323	97/04/04	
					1.8	97020328	97/04/04	
					1.1	97020334	97/04/04	
					1.8	97020344	97/04/04	
					0.7	97020348	97/04/04	
					9.2	97020341	97/04/04	
<0.1	Nitrate+Nitrite				<0.1	97020323	97/04/04	
					0.46	97020328	97/04/04	
					0.46	97020334	97/04/04	
					1.18	97020344	97/04/04	
					0.66	97020348	97/04/04	
					0.84	97020341	97/04/04	
<0.1	Phosphate, Ortho				0.15	97020323	97/04/04	
					0.33	97020328	97/04/04	
					0.83	97020334	97/04/04	
					<0.1	97020344	97/04/04	
					<0.1	97020348	97/04/04	
					2	97020341	97/04/04	
<0.10	Phosphorus, Total				0.29	97020323	97/04/04	
					0.39	97020328	97/04/04	
					0.86	97020334	97/04/04	
					<0.1	97020344	97/04/04	
					<0.1	97020348	97/04/04	
					2.45	97020341	97/04/04	
	Group D							
<0.005	Cyanide, Total				<0.005	97020324	97/04/01	
					<0.005	97020329	97/04/01	
					<0.005	97020335	97/04/01	
					NT			
					NT			
					NT			
	Group E							
<10 ug/L	Phenols				NT			
					21	97020330	97/04/03	
					<10	97020336	97/04/03	
					NT			
					NT			
					NT			
	Group G							
	Acidity, Total				NT			
					NT			
					NT			
					NT			
					NT			
					NT			
	Alkalinity, Total				NT			
					NT			
					NT			
					NT			
					NT			
					NT			
	Bromide				NT			
					NT			
					NT			
					NT			
					NT			
					NT			
<1	Chloride				39.0	97020325	97/04/01	
					31.9	97020331	97/04/01	
					36.5	97020337	97/04/01	
					12.8	97020345	97/03/31	
					21.3	97020349	97/04/01	
					NT			
units	Color				NT			
					NT			
					NT			
					NT			
					NT			
					NT			
	Langlier Index				NT			
					NT			
					NT			
					NT			
					NT			
					NT			
<1	Residue, Total				NT			
					NT			
					NT			
					NT			
					NT			
					NT			
<0.2 mL/L	Residue, Settleable				0.4	97020325	97/04/01	a
					0.4	97020331	97/04/01	a
					1	97020337	97/04/01	a
					<0.2	97020345	97/03/31	a
					0.2	97020349	97/04/01	a
					NT			
<1	Residue, Filterable				312	97020325	97/04/01	
					601	97020331	97/04/01	
					976	97020337	97/04/01	
					682	97020345	97/03/31	
					702	97020349	97/04/01	
					NT			
<1	Residue, Nonfilterable				22	97020325	97/04/01	
					23	97020331	97/04/01	
					54	97020337	97/04/01	
					9	97020345	97/03/31	
					11	97020349	97/04/01	
					NT			
<1	Residue, Volatile				NT			
					NT			
					NT			
					NT			
					NT			
					NT			
	Silica				NT			
					NT			
					NT			
					NT			
					NT			
					NT			
umhos	Specific Conductance				514	97020325	97/04/01	a
					834	97020331	97/04/01	a
					1246	97020337	97/04/01	a
					906	97020345	97/03/31	a
					975	97020349	97/04/01	a
					NT			
<1	Sulfates				67.8	97020325	97/04/01	
					245.2	97020331	97/04/01	
					407.2	97020337	97/04/01	
					260.6	97020345	97/03/31	
					282.5	97020349	97/04/01	
					NT			
<0.1	Sulfides				NT			
					NT			
					<0.1	97020338	97/04/08	a
					NT			
					NT			
					NT			
<0.1	Surfactants				0.04	97020325	97/04/01	
					0.6	97020331	97/04/01	
					0.62	97020337	97/04/01	
					1.52	97020345	97/03/31	
					<0.1	97020349	97/04/01	
					NT			
units	Turbidity				NT			
					NT			
					NT			
					NT			
					NT			
					NT			
<1	Volatile Suspended Solids				8	97020325	97/04/01	
					19	97020331	97/04/01	
					10	97020337	97/04/01	
					2	97020345	97/03/31	
					6	97020349	97/04/01	
					NT			

WHITEMAN PROJECT 17

DATA SUMMARY FORM

VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	EPA 624 OR 601/602	97/03/27	97020311; 321-25; 369;	CN970254 & GN970254	SITE 6			
<5.0	Benzene				<5	97020311	97/04/01	b
<5.0	Bromodichloromethane				<5	97020311	97/04/01	b
<5.0	Bromoform				<5	97020311	97/04/01	b
<5.0	Bromomethane				<5	97020311	97/04/01	b
<5.0	Carbon Tetrachloride				<5	97020311	97/04/01	b
<5.0	Chlorobenzene				<5	97020311	97/04/01	b
<5.0	Chloroethane				<5	97020311	97/04/01	b
<5.0	2-Chloroethylvinylether				<5	97020311	97/04/01	b
<5.0	Chloroform				<5	97020311	97/04/01	b
<5.0	Chloromethane				<5	97020311	97/04/01	b
<5.0	Dibromochloromethane				<5	97020311	97/04/01	b
<5.0	1,2-Dichlorobenzene				<5	97020311	97/04/01	b
<5.0	1,3-Dichlorobenzene				<5	97020311	97/04/01	b
<5.0	1,4-Dichlorobenzene				<5	97020311	97/04/01	b
<5.0	1,1-Dichloroethane				<5	97020311	97/04/01	b
<5.0	1,2-Dichloroethane				<5	97020311	97/04/01	b
<5.0	1,1-Dichloroethene				<5	97020311	97/04/01	b
<5.0	trans-1,2-Dichloroethene				<5	97020311	97/04/01	b
<5.0	1,2-Dichloropropane				<5	97020311	97/04/01	b
<5.0	cis-1,3-Dichloropropene				<5	97020311	97/04/01	b
<5.0	trans-1,3-Dichloropropene				<5	97020311	97/04/01	b
<5.0	Ethylbenzene				<5	97020311	97/04/01	b
<5.0	Methylene Chloride				<5	97020311	97/04/01	b
<5.0	1,1,2,2-Tetrachloroethane				<5	97020311	97/04/01	b
<5.0	Tetrachloroethene				<5	97020311	97/04/01	b
<5.0	Toluene				SN	97020311	97/04/01	b
<5.0	1,1,1-Trichloroethane				<5	97020311	97/04/01	b
<5.0	1,1,2-Trichloroethane				<5	97020311	97/04/01	b
<5.0	Trichloroethene				8	97020311	97/04/01	b
<5.0	Trichlorofluoromethane				<5	97020311	97/04/01	b
<5.0	m-Xylene & p-Xylene				SN	97020311	97/04/01	b
<5.0	o-Xylene				SN	97020311	97/04/01	b
<5.0	Vinyl Chloride				<5	97020311	97/04/01	b

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	EPA 624 OR 601/602	97/03/27	97020312; 326-331; 370;	CN970255 & GN970255	SITE 7			
<5.0	Benzene				<5	97020312	97/04/01	b,e
<5.0	Bromodichloromethane				<5	97020312	97/04/01	b,e
<5.0	Bromoform				<5	97020312	97/04/01	b,e
<5.0	Bromomethane				<5	97020312	97/04/01	b,e
<5.0	Carbon Tetrachloride				<5	97020312	97/04/01	b,e
<5.0	Chlorobenzene				<5	97020312	97/04/01	b,e
<5.0	Chloroethane				<5	97020312	97/04/01	b,e
<5.0	2-Chloroethylvinylether				<5	97020312	97/04/01	b,e
<5.0	Chloroform				<5	97020312	97/04/01	b,e
<5.0	Chloromethane				<5	97020312	97/04/01	b,e
<5.0	Dibromochloromethane				<5	97020312	97/04/01	b,e
<5.0	1,2-Dichlorobenzene				<5	97020312	97/04/01	b,e
<5.0	1,3-Dichlorobenzene				<5	97020312	97/04/01	b,e
<5.0	1,4-Dichlorobenzene				<5	97020312	97/04/01	b,e
<5.0	1,1-Dichloroethane				<5	97020312	97/04/01	b,e
<5.0	1,2-Dichloroethane				<5	97020312	97/04/01	b,e
<5.0	1,1-Dichloroethene				<5	97020312	97/04/01	b,e
<5.0	trans-1,2-Dichloroethene				<5	97020312	97/04/01	b,e
<5.0	1,2-Dichloropropane				<5	97020312	97/04/01	b,e
<5.0	cis-1,3-Dichloropropene				<5	97020312	97/04/01	b,e
<5.0	trans-1,3-Dichloropropene				<5	97020312	97/04/01	b,e
<5.0	Ethylbenzene				<5	97020312	97/04/01	b,e
<5.0	Methylene Chloride				<5	97020312	97/04/01	b,e
<5.0	1,1,2,2-Tetrachloroethane				<5	97020312	97/04/01	b,e
<5.0	Tetrachloroethene				<5	97020312	97/04/01	b,e
<5.0	Toluene				SN	97020312	97/04/01	b,e
<5.0	1,1,1-Trichloroethane				SN	97020312	97/04/01	b,e
<5.0	1,1,2-Trichloroethane				<5	97020312	97/04/01	b,e
<5.0	Trichloroethene				8	97020312	97/04/01	b,e
<5.0	Trichlorofluoromethane				<5	97020312	97/04/01	b,e
<5.0	m-Xylene & p-Xylene				SN	97020312	97/04/01	b,e
<5.0	o-Xylene				SN	97020312	97/04/01	b,e
<5.0	Vinyl Chloride				<5	97020312	97/04/01	b,e

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	EPA 624 OR 601/602	97/03/27	97020313; 332-38; 371;	CN970256 & GN970256	SITE 9			
<5.0	Benzene				<5	97020313	97/04/01	
<5.0	Bromodichloromethane				<5	97020313	97/04/01	
<5.0	Bromoform				<5	97020313	97/04/01	
<5.0	Bromomethane				<5	97020313	97/04/01	
<5.0	Carbon Tetrachloride				<5	97020313	97/04/01	
<5.0	Chlorobenzene				<5	97020313	97/04/01	
<5.0	Chloroethane				<5	97020313	97/04/01	
<5.0	2-Chloroethylvinylether				<5	97020313	97/04/01	
<5.0	Chloroform				<5	97020313	97/04/01	
<5.0	Chloromethane				<5	97020313	97/04/01	
<5.0	Dibromochloromethane				<5	97020313	97/04/01	
<5.0	1,2-Dichlorobenzene				<5	97020313	97/04/01	
<5.0	1,3-Dichlorobenzene				<5	97020313	97/04/01	
<5.0	1,4-Dichlorobenzene				<5	97020313	97/04/01	
<5.0	1,1-Dichloroethane				<5	97020313	97/04/01	
<5.0	1,2-Dichloroethane				<5	97020313	97/04/01	
<5.0	1,1-Dichloroethene				<5	97020313	97/04/01	
<5.0	trans-1,2-Dichloroethene				<5	97020313	97/04/01	
<5.0	1,2-Dichloropropane				<5	97020313	97/04/01	
<5.0	cis-1,3-Dichloropropene				<5	97020313	97/04/01	
<5.0	trans-1,3-Dichloropropene				<5	97020313	97/04/01	
<5.0	Ethylbenzene				<5	97020313	97/04/01	
<5.0	Methylene Chloride				<5	97020313	97/04/01	
<5.0	1,1,2,2-Tetrachloroethane				<5	97020313	97/04/01	
<5.0	Tetrachloroethene				<5	97020313	97/04/01	
<5.0	Toluene				<5	97020313	97/04/01	
<5.0	1,1,1-Trichloroethane				<5	97020313	97/04/01	
<5.0	1,1,2-Trichloroethane				<5	97020313	97/04/01	
<5.0	Trichloroethene				<5	97020313	97/04/01	
<5.0	Trichlorofluoromethane				<5	97020313	97/04/01	
<5.0	m-Xylene & p-Xylene				<5	97020313	97/04/01	
<5.0	o-Xylene				<5	97020313	97/04/01	
<5.0	Vinyl Chloride				<5	97020313	97/04/01	

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	EPA 624 OR 601/602	97/03/27	97020315; 342-45; 372;	CN970260 & GN970260	SITE 10			
<100	Benzene				<100	97020315	97/04/01	b,g
<100	Bromodichloromethane				<100	97020315	97/04/01	b,g
<100	Bromoform				<100	97020315	97/04/01	b,g
<100	Bromomethane				<100	97020315	97/04/01	b,g
<100	Carbon Tetrachloride				<100	97020315	97/04/01	b,g
<100	Chlorobenzene				<100	97020315	97/04/01	b,g
<100	Chloroethane				<100	97020315	97/04/01	b,g
<100	2-Chloroethylvinylether				<100	97020315	97/04/01	b,g
<100	Chloroform				<100	97020315	97/04/01	b,g
<100	Chloromethane				<100	97020315	97/04/01	b,g
<100	Dibromochloromethane				<100	97020315	97/04/01	b,g
<100	1,2-Dichlorobenzene				<100	97020315	97/04/01	b,g
<100	1,3-Dichlorobenzene				<100	97020315	97/04/01	b,g
<100	1,4-Dichlorobenzene				<100	97020315	97/04/01	b,g
<100	1,1-Dichloroethane				<100	97020315	97/04/01	b,g
<100	1,2-Dichloroethane				<100	97020315	97/04/01	b,g
<100	1,1-Dichloroethene				<100	97020315	97/04/01	b,g
<100	trans-1,2-Dichloroethene				<100	97020315	97/04/01	b,g
<100	1,2-Dichloropropane				<100	97020315	97/04/01	b,g
<100	cis-1,3-Dichloropropene				<100	97020315	97/04/01	b,g
<100	trans-1,3-Dichloropropene				<100	97020315	97/04/01	b,g
<100	Ethylbenzene				<100	97020315	97/04/01	b,g
<100	Methylene Chloride				<100	97020315	97/04/01	b,g
<100	1,1,2,2-Tetrachloroethane				<100	97020315	97/04/01	b,g
<100	Tetrachloroethene				<100	97020315	97/04/01	b,g
<100	Toluene				<100	97020315	97/04/01	b,g
<100	1,1,1-Trichloroethane				<100	97020315	97/04/01	b,g
<100	1,1,2-Trichloroethane				<100	97020315	97/04/01	b,g
<100	Trichloroethene				<100	97020315	97/04/01	b,g
<100	Trichlorofluoromethane				<100	97020315	97/04/01	b,g
<100	m-Xylene & p-Xylene				<100	97020315	97/04/01	b,g
<100	o-Xylene				<100	97020315	97/04/01	b,g
<100	Vinyl Chloride				<100	97020315	97/04/01	b,g

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	EPA 624 OR 601/602	97/03/27	97020316; 346-49; 373;	CN970261 & GN970261	SITE 11			
<5.0	Benzene				<5	97020316	97/04/01	
<5.0	Bromodichloromethane				<5	97020316	97/04/01	
<5.0	Bromoform				<5	97020316	97/04/01	
<5.0	Bromomethane				<5	97020316	97/04/01	
<5.0	Carbon Tetrachloride				<5	97020316	97/04/01	
<5.0	Chlorobenzene				<5	97020316	97/04/01	
<5.0	Chloroethane				<5	97020316	97/04/01	
<5.0	2-Chloroethylvinylether				<5	97020316	97/04/01	
<5.0	Chloroform				<5	97020316	97/04/01	
<5.0	Chloromethane				<5	97020316	97/04/01	
<5.0	Dibromochloromethane				<5	97020316	97/04/01	
<5.0	1,2-Dichlorobenzene				<5	97020316	97/04/01	
<5.0	1,3-Dichlorobenzene				<5	97020316	97/04/01	
<5.0	1,4-Dichlorobenzene				<5	97020316	97/04/01	
<5.0	1,1-Dichloroethane				<5	97020316	97/04/01	
<5.0	1,2-Dichloroethane				<5	97020316	97/04/01	
<5.0	1,1-Dichloroethene				<5	97020316	97/04/01	
<5.0	trans-1,2-Dichloroethene				<5	97020316	97/04/01	
<5.0	1,2-Dichloropropane				<5	97020316	97/04/01	
<5.0	cis-1,3-Dichloropropene				<5	97020316	97/04/01	
<5.0	trans-1,3-Dichloropropene				<5	97020316	97/04/01	
<5.0	Ethylbenzene				<5	97020316	97/04/01	
<5.0	Methylene Chloride				<5	97020316	97/04/01	
<5.0	1,1,2,2-Tetrachloroethane				<5	97020316	97/04/01	
<5.0	Tetrachloroethene				<5	97020316	97/04/01	
<5.0	Toluene				<5	97020316	97/04/01	
<5.0	1,1,1-Trichloroethane				<5	97020316	97/04/01	
<5.0	1,1,2-Trichloroethane				<5	97020316	97/04/01	
<5.0	Trichloroethene				<5	97020316	97/04/01	
<5.0	Trichlorofluoromethane				<5	97020316	97/04/01	
<5.0	m-Xylene & p-Xylene				<5	97020316	97/04/01	
<5.0	o-Xylene				<5	97020316	97/04/01	
<5.0	Vinyl Chloride				<5	97020316	97/04/01	

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	EPA 624 OR 601/602	97/03/27	97020314; 339-341;	CN970258 & GN970258	SITE 12			
<5.0	Benzene				<5	97020314	97/04/01	b,f
<5.0	Bromodichloromethane				<5	97020314	97/04/01	b,f
<5.0	Bromoform				<5	97020314	97/04/01	b,f
<5.0	Bromomethane				<5	97020314	97/04/01	b,f
<5.0	Carbon Tetrachloride				<5	97020314	97/04/01	b,f
<5.0	Chlorobenzene				<5	97020314	97/04/01	b,f
<5.0	Chloroethane				<5	97020314	97/04/01	b,f
<5.0	2-Chloroethylvinylether				<5	97020314	97/04/01	b,f
<5.0	Chloroform				<5	97020314	97/04/01	b,f
<5.0	Chloromethane				<5	97020314	97/04/01	b,f
<5.0	Dibromochloromethane				<5	97020314	97/04/01	b,f
<5.0	1,2-Dichlorobenzene				<5	97020314	97/04/01	b,f
<5.0	1,3-Dichlorobenzene				<5	97020314	97/04/01	b,f
<5.0	1,4-Dichlorobenzene				<5	97020314	97/04/01	b,f
<5.0	1,1-Dichloroethane				<5	97020314	97/04/01	b,f
<5.0	1,2-Dichloroethane				<5	97020314	97/04/01	b,f
<5.0	1,1-Dichloroethene				<5	97020314	97/04/01	b,f
<5.0	trans-1,2-Dichloroethene				<5	97020314	97/04/01	b,f
<5.0	1,2-Dichloropropane				<5	97020314	97/04/01	b,f
<5.0	cis-1,3-Dichloropropene				<5	97020314	97/04/01	b,f
<5.0	trans-1,3-Dichloropropene				<5	97020314	97/04/01	b,f
<5.0	Ethylbenzene				<5	97020314	97/04/01	b,f
<5.0	Methylene Chloride				<5	97020314	97/04/01	b,f
<5.0	1,1,2,2-Tetrachloroethane				<5	97020314	97/04/01	b,f
<5.0	Tetrachloroethene				<5	97020314	97/04/01	b,f
<5.0	Toluene				<5	97020314	97/04/01	b,f
<5.0	1,1,1-Trichloroethane				<5	97020314	97/04/01	b,f
<5.0	1,1,2-Trichloroethane				<5	97020314	97/04/01	b,f
<5.0	Trichloroethene				<5	97020314	97/04/01	b,f
<5.0	Trichlorofluoromethane				<5	97020314	97/04/01	b,f
<5.0	m-Xylene & p-Xylene				<5	97020314	97/04/01	b,f
<5.0	o-Xylene				SN	97020314	97/04/01	b,f
<5.0	Vinyl Chloride				<5	97020314	97/04/01	b,f

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method	Date Collected	97/03/27				97/03/27				97/03/27				97/03/27				97/03/27				97/03/27			
	Sample Numbers	97020311; 321-25; 369;				97020312; 326-331; 370;				97020313; 332-38; 371;				97020315; 342-45; 372;				97020316; 346-49; 373;				97020314; 339-341;			
Detection	Tracking Numbers	CN970254 & GN970254				CN970255 & GN970255				CN970256 & GN970256				CN970260 & GN970260				CN970261 & GN970261				CN970258 & GN970258			
Limit		SITE 6				SITE 7				SITE 9				SITE 10				SITE 11				SITE 12			
(ug/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	EPA 625																								
<5	Acenaphthene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Acenaphthylene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
	Aldrin	ABSENT	97020369	97/04/01	d,i	ABSENT	97020370	97/04/01	d,i	ABSENT	97020371	97/04/01	d,i	ABSENT	97020372	97/04/01	d,j	ABSENT	97020373	97/04/01	d,k	SEE EPA METHOD608			
<5	Anthracene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
	Aroclor 1260	ABSENT	97020369	97/04/01	d,i	ABSENT	97020370	97/04/01	d,i	ABSENT	97020371	97/04/01	d,i	ABSENT	97020372	97/04/01	d,j	ABSENT	97020373	97/04/01	d,k	SEE EPA METHOD608			
<5	Benzidine	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Benzo(a)anthracene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Benzo(a)pyrene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Benzo(b)fluoranthene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Benzo(g,h,i)perylene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Benzo(k)fluoranthene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
	beta-BHC	ABSENT	97020369	97/04/01	d,i	ABSENT	97020370	97/04/01	d,i	ABSENT	97020371	97/04/01	d,i	ABSENT	97020372	97/04/01	d,j	ABSENT	97020373	97/04/01	d,k	SEE EPA METHOD608			
	delta-BHC	ABSENT	97020369	97/04/01	d,i	ABSENT	97020370	97/04/01	d,i	ABSENT	97020371	97/04/01	d,i	ABSENT	97020372	97/04/01	d,j	ABSENT	97020373	97/04/01	d,k	SEE EPA METHOD608			
<5	Bis(2-chloro ethoxy)methane	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Bis(2-chloro ethyl)ether	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Bis(2-chloroisopropyl)ether	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Bis(2-ethylhexyl)phthalate	13.9	97020369	97/04/01	i	<10	97020370	97/04/01	i	34.6	97020371	97/04/01	i	30.3	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	4-Bromophenyl Phenyl Ether	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Butylbenzylphthalate	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
	Chlordane	ABSENT	97020369	97/04/01	d,i	ABSENT	97020370	97/04/01	d,i	ABSENT	97020371	97/04/01	d,i	ABSENT	97020372	97/04/01	d,j	ABSENT	97020373	97/04/01	d,k	SEE EPA METHOD608			
<5	4-chloro-3-methyl Phenol	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	2-chloronaphthalene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	2-chlorophenol	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	4-chlorophenyl Phenyl Ether	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Chrysene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
	4,4-DDD	ABSENT	97020369	97/04/01	d,i	ABSENT	97020370	97/04/01	d,i	ABSENT	97020371	97/04/01	d,i	ABSENT	97020372	97/04/01	d,j	ABSENT	97020373	97/04/01	d,k	SEE EPA METHOD608			
	4,4-DDE	ABSENT	97020369	97/04/01	d,i	ABSENT	97020370	97/04/01	d,i	ABSENT	97020371	97/04/01	d,i	ABSENT	97020372	97/04/01	d,j	ABSENT	97020373	97/04/01	d,k	SEE EPA METHOD608			
	4,4-DDT	ABSENT	97020369	97/04/01	d,i	ABSENT	97020370	97/04/01	d,i	ABSENT	97020371	97/04/01	d,i	ABSENT	97020372	97/04/01	d,j	ABSENT	97020373	97/04/01	d,k	SEE EPA METHOD608			
	Dieldrin	ABSENT	97020369	97/04/01	d,i	ABSENT	97020370	97/04/01	d,i	ABSENT	97020371	97/04/01	d,i	ABSENT	97020372	97/04/01	d,j	ABSENT	97020373	97/04/01	d,k	SEE EPA METHOD608			
<5	Dibenzo(a,h)anthracene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	1,2-Dichlorobenzene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	1,3-Dichlorobenzene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	1,4-Dichlorobenzene	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	3,3-Dichlorobenzidine	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	2,4-Dichlorophenol	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Diethylphthalate	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	2,4-Dimethylphenol	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Dimethylphthalate	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Di-n-Butylphthalate	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Di-n-Octylphthalate	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	4,6-Dinitro-2-Methylphenol	<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS (cont'd)

Wastewater Samples

(ug/L)

Method Detection Limit		Date Collected	97/03/27				97/03/27				97/03/27				97/03/27				97/03/27				97/03/27			
		Sample Numbers	97020311; 321-25; 369;				97020312; 326-331; 370;				97020313; 332-38; 371;				97020315; 342-45; 372;				97020316; 346-49; 373;				97020314; 339-341;			
		Tracking Numbers	CN970254 & GN970254				CN970255 & GN970255				CN970256 & GN970256				CN970260 & GN970260				CN970261 & GN970261				CN970258 & GN970258			
			SITE 6				SITE 7				SITE 9				SITE 10				SITE 11				SITE 12			
(ug/L)	Compound		Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
<5	2,4-Dinitrophenol		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	2,6-Dinitrotoluene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	2,4-Dinitrotoluene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Fluoranthene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Fluorene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Hexachlorobenzene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Hexachlorobutadiene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Hexachlorocyclopentadiene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Hexachloroethane		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Indeno(1,2,3-c,d)pyrene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Isophorone		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
	4,4-Methylenedianiline		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Naphthalene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
	N-Nitrosodi-n-Propylamine		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	N-Nitrosodiphenylamine		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Nitrobenzene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	2-Nitrophenol		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	4-Nitrophenol		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Pentachlorophenol		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Phenanthrene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Phenol		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	Pyrene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
	Toxaphene		ABSENT	97020369	97/04/01	d,i	ABSENT	97020370	97/04/01	d,i	ABSENT	97020371	97/04/01	d,i	ABSENT	97020372	97/04/01	d,j	ABSENT	97020373	97/04/01	d,k	SEE EPA METHOD608			
<5	1,2,4-Trichlorobenzene		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			
<5	2,4,6-Trichlorophenol		<10	97020369	97/04/01	i	<10	97020370	97/04/01	i	<10	97020371	97/04/01	i	<13	97020372	97/04/01	j	<10	97020373	97/04/01	k	NT			

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS (cont'd)

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Date Collected	97/03/23				97/03/23				97/03/23				97/03/23				97/03/23				97/03/23			
	Sample Numbers	97019174; 193; 258; 309-315				97019171; 191; 255; 294-300; 779				97019173; 192; 243; 257; 302-308				97019172; 301; 242; 256;				97019175; 194; 244; 259; 316-322				97019176; 323-329; 260; 245; 195			
	Tracking Numbers	CN970217 & GN970217				CN970214 & GN970214				CN970216 & GN970216				CN970215 & GN970215				CN970218 & GN970218				CN970219 & GN970219			
		SITE 4 (See Comment o)				SITE 5 (See Comment q)				SITE 6				SITE7				SITE 8 (See Comment p)				SITE 9			
	EPA 625																								
<5	Acenaphthene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Acenaphthylene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
	Aldrin	ABSENT	97019258	97/03/25	e,m	ABSENT	97019255	97/03/25	e,j	ABSENT	97019257	97/03/25	e,l	ABSENT	97019256	97/03/25	e,k	ABSENT	97019259	97/03/25	e,n	ABSENT	97019260	97/03/25	e
<5	Anthracene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
	Aroclor 1260	ABSENT	97019258	97/03/25	e,m	ABSENT	97019255	97/03/25	e,j	ABSENT	97019257	97/03/25	e,l	ABSENT	97019256	97/03/25	e,k	ABSENT	97019259	97/03/25	e,n	ABSENT	97019260	97/03/25	e
<5	Benzidine	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Benzo(a)anthracene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Benzo(a)pyrene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Benzo(b)fluoranthene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Benzo(g,h,i)perylene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Benzo(k)fluoranthene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
	beta-BHC	ABSENT	97019258	97/03/25	e,m	ABSENT	97019255	97/03/25	e,j	ABSENT	97019257	97/03/25	e,l	ABSENT	97019256	97/03/25	e,k	ABSENT	97019259	97/03/25	e,n	ABSENT	97019260	97/03/25	e
	delta-BHC	ABSENT	97019258	97/03/25	e,m	ABSENT	97019255	97/03/25	e,j	ABSENT	97019257	97/03/25	e,l	ABSENT	97019256	97/03/25	e,k	ABSENT	97019259	97/03/25	e,n	ABSENT	97019260	97/03/25	e
<5	Bis(2-chloro ethoxy)methane	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Bis(2-chloro ethyl)ether	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Bis(2-chloroisopropyl)ether	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Bis(2-ethylhexyl)phthalate	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	254	97019260	97/03/25	
<5	4-Bromophenyl Phenyl Ether	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Butylbenzylphthalate	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
	Chlordane	ABSENT	97019258	97/03/25	e,m	ABSENT	97019255	97/03/25	e,j	ABSENT	97019257	97/03/25	e,l	ABSENT	97019256	97/03/25	e,k	ABSENT	97019259	97/03/25	e,n	ABSENT	97019260	97/03/25	e
<5	4-chloro-3-methyl Phenol	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	2-chloronaphthalene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	2-chlorophenol	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	4-chlorophenyl Phenyl Ether	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Chrysene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
	4,4-DDD	ABSENT	97019258	97/03/25	e,m	ABSENT	97019255	97/03/25	e,j	ABSENT	97019257	97/03/25	e,l	ABSENT	97019256	97/03/25	e,k	ABSENT	97019259	97/03/25	e,n	ABSENT	97019260	97/03/25	e
	4,4-DDE	ABSENT	97019258	97/03/25	e,m	ABSENT	97019255	97/03/25	e,j	ABSENT	97019257	97/03/25	e,l	ABSENT	97019256	97/03/25	e,k	ABSENT	97019259	97/03/25	e,n	ABSENT	97019260	97/03/25	e
	4,4-DDT	ABSENT	97019258	97/03/25	e,m	ABSENT	97019255	97/03/25	e,j	ABSENT	97019257	97/03/25	e,l	ABSENT	97019256	97/03/25	e,k	ABSENT	97019259	97/03/25	e,n	ABSENT	97019260	97/03/25	e
	Dieldrin	ABSENT	97019258	97/03/25	e,m	ABSENT	97019255	97/03/25	e,j	ABSENT	97019257	97/03/25	e,l	ABSENT	97019256	97/03/25	e,k	ABSENT	97019259	97/03/25	e,n	ABSENT	97019260	97/03/25	e
<5	Dibenzo(a,h)anthracene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	1,2-Dichlorobenzene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	1,3-Dichlorobenzene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	1,4-Dichlorobenzene	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	3,3-Dichlorobenzidine	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	2,4-Dichlorophenol	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Diethylphthalate	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	2,4-Dimethylphenol	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Dimethylphthalate	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Di-n-Butylphthalate	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	Di-n-Octylphthalate	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	
<5	4,6-Dinitro-2-Methylphenol	<10	97019258	97/03/25	m	<10	97019255	97/03/25	j	<10	97019257	97/03/25	l	<10	97019256	97/03/25	k	<10	97019259	97/03/25	n	<10	97019260	97/03/25	

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS (cont'd)

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/23	97019174; 193; 258; 309-315	CN970217 & GN970217	SITE 4 (See Comment o)			
<5	2,4-Dinitrophenol				<10	97019258	97/03/25	m
<5	2,6-Dinitrotoluene				<10	97019258	97/03/25	m
<5	2,4-Dinitrotoluene				<10	97019258	97/03/25	m
<5	Fluoranthene				<10	97019258	97/03/25	m
<5	Fluorene				<10	97019258	97/03/25	m
<5	Hexachlorobenzene				<10	97019258	97/03/25	m
<5	Hexachlorobutadiene				<10	97019258	97/03/25	m
<5	Hexachlorocyclopentadiene				<10	97019258	97/03/25	m
<5	Hexachloroethane				<10	97019258	97/03/25	m
<5	Indeno(1,2,3-c,d)pyrene				<10	97019258	97/03/25	m
<5	Isophorone				<10	97019258	97/03/25	m
	4,4-Methylenedianiline				<10	97019258	97/03/25	m
<5	Naphthalene				<10	97019258	97/03/25	m
	N-Nitrosodi-n-Propylamine				<10	97019258	97/03/25	m
<5	N-Nitrosodiphenylamine				<10	97019258	97/03/25	m
<5	Nitrobenzene				<10	97019258	97/03/25	m
<5	2-Nitrophenol				<10	97019258	97/03/25	m
<5	4-Nitrophenol				<10	97019258	97/03/25	m
<5	Pentachlorophenol				<10	97019258	97/03/25	m
<5	Phenanthrene				<10	97019258	97/03/25	m
<5	Phenol				<10	97019258	97/03/25	m
<5	Pyrene				<10	97019258	97/03/25	m
	Toxaphene				ABSENT	97019258	97/03/25	e,m
<5	1,2,4-Trichlorobenzene				<10	97019258	97/03/25	m
<5	2,4,6-Trichlorophenol				<10	97019258	97/03/25	m

Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	97/03/23	97019171; 191; 255; 294-300; 779	CN970214 & GN970214	SITE 5 (See Comment q)			
2,4-Dinitrophenol				<10	97019255	97/03/25	j
2,6-Dinitrotoluene				<10	97019255	97/03/25	j
2,4-Dinitrotoluene				<10	97019255	97/03/25	j
Fluoranthene				<10	97019255	97/03/25	j
Fluorene				<10	97019255	97/03/25	j
Hexachlorobenzene				<10	97019255	97/03/25	j
Hexachlorobutadiene				<10	97019255	97/03/25	j
Hexachlorocyclopentadiene				<10	97019255	97/03/25	j
Hexachloroethane				<10	97019255	97/03/25	j
Indeno(1,2,3-c,d)pyrene				<10	97019255	97/03/25	j
Isophorone				<10	97019255	97/03/25	j
4,4-Methylenedianiline				<10	97019255	97/03/25	j
Naphthalene				<10	97019255	97/03/25	j
N-Nitrosodi-n-Propylamine				<10	97019255	97/03/25	j
N-Nitrosodiphenylamine				<10	97019255	97/03/25	j
Nitrobenzene				<10	97019255	97/03/25	j
2-Nitrophenol				<10	97019255	97/03/25	j
4-Nitrophenol				<10	97019255	97/03/25	j
Pentachlorophenol				<10	97019255	97/03/25	j
Phenanthrene				<10	97019255	97/03/25	j
Phenol				<10	97019255	97/03/25	j
Pyrene				<10	97019255	97/03/25	j
Toxaphene				ABSENT	97019255	97/03/25	e,j
1,2,4-Trichlorobenzene				<10	97019255	97/03/25	j
2,4,6-Trichlorophenol				<10	97019255	97/03/25	j

Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	97/03/23	97019173; 192; 243; 257; 302-308	CN970216 & GN970216	SITE 6			
2,4-Dinitrophenol				<10	97019257	97/03/25	l
2,6-Dinitrotoluene				<10	97019257	97/03/25	l
2,4-Dinitrotoluene				<10	97019257	97/03/25	l
Fluoranthene				<10	97019257	97/03/25	l
Fluorene				<10	97019257	97/03/25	l
Hexachlorobenzene				<10	97019257	97/03/25	l
Hexachlorobutadiene				<10	97019257	97/03/25	l
Hexachlorocyclopentadiene				<10	97019257	97/03/25	l
Hexachloroethane				<10	97019257	97/03/25	l
Indeno(1,2,3-c,d)pyrene				<10	97019257	97/03/25	l
Isophorone				<10	97019257	97/03/25	l
4,4-Methylenedianiline				<10	97019257	97/03/25	l
Naphthalene				<10	97019257	97/03/25	l
N-Nitrosodi-n-Propylamine				<10	97019257	97/03/25	l
N-Nitrosodiphenylamine				<10	97019257	97/03/25	l
Nitrobenzene				<10	97019257	97/03/25	l
2-Nitrophenol				<10	97019257	97/03/25	l
4-Nitrophenol				<10	97019257	97/03/25	l
Pentachlorophenol				<10	97019257	97/03/25	l
Phenanthrene				<10	97019257	97/03/25	l
Phenol				<10	97019257	97/03/25	l
Pyrene				<10	97019257	97/03/25	l
Toxaphene				ABSENT	97019257	97/03/25	e,l
1,2,4-Trichlorobenzene				<10	97019257	97/03/25	l
2,4,6-Trichlorophenol				<10	97019257	97/03/25	l

Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	97/03/23	97019172; 301; 242; 256;	CN970215 & GN970215	SITE7			
2,4-Dinitrophenol				<10	97019256	97/03/25	k
2,6-Dinitrotoluene				<10	97019256	97/03/25	k
2,4-Dinitrotoluene				<10	97019256	97/03/25	k
Fluoranthene				<10	97019256	97/03/25	k
Fluorene				<10	97019256	97/03/25	k
Hexachlorobenzene				<10	97019256	97/03/25	k
Hexachlorobutadiene				<10	97019256	97/03/25	k
Hexachlorocyclopentadiene				<10	97019256	97/03/25	k
Hexachloroethane				<10	97019256	97/03/25	k
Indeno(1,2,3-c,d)pyrene				<10	97019256	97/03/25	k
Isophorone				<10	97019256	97/03/25	k
4,4-Methylenedianiline				<10	97019256	97/03/25	k
Naphthalene				<10	97019256	97/03/25	k
N-Nitrosodi-n-Propylamine				<10	97019256	97/03/25	k
N-Nitrosodiphenylamine				<10	97019256	97/03/25	k
Nitrobenzene				<10	97019256	97/03/25	k
2-Nitrophenol				<10	97019256	97/03/25	k
4-Nitrophenol				<10	97019256	97/03/25	k
Pentachlorophenol				<10	97019256	97/03/25	k
Phenanthrene				<10	97019256	97/03/25	k
Phenol				<10	97019256	97/03/25	k
Pyrene				<10	97019256	97/03/25	k
Toxaphene				ABSENT	97019256	97/03/25	e,k
1,2,4-Trichlorobenzene				<10	97019256	97/03/25	k
2,4,6-Trichlorophenol				<10	97019256	97/03/25	k

Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	97/03/23	97019175; 194; 244; 259; 316-322	CN970218 & GN970218	SITE 8 (See Comment p)			
2,4-Dinitrophenol				<10	97019259	97/03/25	n
2,6-Dinitrotoluene				<10	97019259	97/03/25	n
2,4-Dinitrotoluene				<10	97019259	97/03/25	n
Fluoranthene				<10	97019259	97/03/25	n
Fluorene				<10	97019259	97/03/25	n
Hexachlorobenzene				<10	97019259	97/03/25	n
Hexachlorobutadiene				<10	97019259	97/03/25	n
Hexachlorocyclopentadiene				<10	97019259	97/03/25	n
Hexachloroethane				<10	97019259	97/03/25	n
Indeno(1,2,3-c,d)pyrene				<10	97019259	97/03/25	n
Isophorone				<10	97019259	97/03/25	n
4,4-Methylenedianiline				<10	97019259	97/03/25	n
Naphthalene				<10	97019259	97/03/25	n
N-Nitrosodi-n-Propylamine				<10	97019259	97/03/25	n
N-Nitrosodiphenylamine				<10	97019259	97/03/25	n
Nitrobenzene				<10	97019259	97/03/25	n
2-Nitrophenol				<10	97019259	97/03/25	n
4-Nitrophenol				<10	97019259	97/03/25	n
Pentachlorophenol				<10	97019259	97/03/25	n
Phenanthrene				<10	97019259	97/03/25	n
Phenol				<10	97019259	97/03/25	n
Pyrene				<10	97019259	97/03/25	n
Toxaphene				ABSENT	97019259	97/03/25	e,n
1,2,4-Trichlorobenzene				<10	97019259	97/03/25	n
2,4,6-Trichlorophenol				<10	97019259	97/03/25	n

Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	97/03/23	97019176; 323-329; 260; 245; 195	CN970219 & GN970219	SITE 9			
2,4-Dinitrophenol				<10	97019260	97/03/25	
2,6-Dinitrotoluene				<10	97019260	97/03/25	
2,4-Dinitrotoluene				<10	97019260	97/03/25	
Fluoranthene				<10	97019260	97/03/25	
Fluorene				<10	97019260	97/03/25	
Hexachlorobenzene				<10	97019260	97/03/25	
Hexachlorobutadiene				<10	97019260	97/03/25	
Hexachlorocyclopentadiene				<10	97019260	97/03/25	
Hexachloroethane				<10	97019260	97/03/25	
Indeno(1,2,3-c,d)pyrene				<10	97019260	97/03/25	
Isophorone				<10	97019260	97/03/25	
4,4-Methylenedianiline				<10	97019260	97/03/25	
Naphthalene				<10	97019260	97/03/25	
N-Nitrosodi-n-Propylamine				<10	97019260	97/03/25	
N-Nitrosodiphenylamine				<10	97019260	97/03/25	
Nitrobenzene				<10	97019260	97/03/25	
2-Nitrophenol				<10	97019260	97/03/25	
4-Nitrophenol				<10	97019260	97/03/25	
Pentachlorophenol				<10	97019260	97/03/25	
Phenanthrene				<10	97019260	97/03/25	
Phenol				<10	97019260	97/03/25	
Pyrene				<10	97019260	97/03/25	
Toxaphene				ABSENT	97019260	97/03/25	e
1,2,4-Trichlorobenzene				<10	97019260	97/03/25	
2,4,6-Trichlorophenol				<10	97019260	97/03/25	

WHITEMAN PROJECT 17

DATA SUMMARY FORM

METALS

Wastewater Samples

(mg/L)

Method Detection Limit (mg/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Date Collected	97/03/23				97/03/23				97/03/23				97/03/23				97/03/23				97/03/23			
	Sample Numbers	97019174; 193; 258; 309-315				97019171; 191; 255; 294-300; 779				97019173; 192; 243; 257; 302-308				97019172; 301; 242; 256;				97019175; 194; 244; 259; 316-322				97019176; 323-329; 260; 245; 195			
	Tracking Numbers	CN970217 & GN970217				CN970214 & GN970214				CN970216 & GN970216				CN970215 & GN970215				CN970218 & GN970218				CN970219 & GN970219			
		SITE 4 (See Comment o)				SITE 5 (See Comment q)				SITE 6				SITE7				SITE 8 (See Comment p)				SITE 9			
	Group F																								
<0.030	Aluminum	0.560	97019193	97/04/02		0.204	97019191	97/04/01		0.029	97019192	97/04/02		NT				19.8	97019194	97/04/02		13	97019195	97/04/02	
<0.003	Antimony	<0.003	97019193	97/04/02		0.028	97019191	97/04/01		<0.003	97019192	97/04/02		NT				0.015	97019194	97/04/02		0.01	97019195	97/04/02	
<0.005	Arsenic	<0.005	97019193	97/04/02		<0.005	97019191	97/04/01		<0.005	97019192	97/04/02		NT				0.014	97019194	97/04/02		0.078	97019195	97/04/02	
<0.050	Barium	0.063	97019193	97/04/02		0.046	97019191	97/04/01		<0.005	97019192	97/04/02		NT				1.11	97019194	97/04/02		0.911	97019195	97/04/02	
<0.001	Beryllium	0.0007	97019193	97/04/02		<0.0005	97019191	97/04/01		<0.0005	97019192	97/04/02		NT				0.0774	97019194	97/04/02		0.039	97019195	97/04/02	
<0.05	Boron	NT				NT				NT				NT				NT				NT			
<0.001	Cadmium	0.010	97019193	97/04/02		0.029	97019191	97/04/01		0.001	97019192	97/04/02		NT				0.043	97019194	97/04/02		0.009	97019195	97/04/02	
<1	Calcium	NT				NT				NT				NT				NT				NT			
<0.01	Chromium	0.014	97019193	97/04/02		0.006	97019191	97/04/01		<0.005	97019192	97/04/02		NT				0.083	97019194	97/04/02		0.038	97019195	97/04/02	
<0.05	Cobalt	<0.025	97019193	97/04/02		<0.025	97019191	97/04/01		<0.025	97019192	97/04/02		NT				0.125	97019194	97/04/02		0.061	97019195	97/04/02	
<0.02	Copper	0.051	97019193	97/04/02		0.089	97019191	97/04/01		0.024	97019192	97/04/02		NT				2.45	97019194	97/04/02		0.169	97019195	97/04/02	
<0.03	Iron	3.71	97019193	97/04/02		0.375	97019191	97/04/01		0.116	97019192	97/04/02		NT				106	97019194	97/04/02		29.2	97019195	97/04/02	
<0.02	Lead	0.042	97019193	97/04/02		0.015	97019191	97/04/01		0.003	97019192	97/04/02		NT				0.253	97019194	97/04/02		0.126	97019195	97/04/02	
<1	Magnesium	NT				NT				NT				NT				NT				NT			
<0.03	Manganese	NT				NT				NT				NT				NT				NT			
<0.0002	Mercury	<0.0002	97019193	97/04/02		0.0002	97019191	97/04/01		<0.0002	97019192	97/04/02		NT				<0.0002	97019194	97/04/02		<0.0002	97019195	97/04/02	
<0.03	Molybdenum	<0.030	97019193	97/04/02		0.171	97019191	97/04/01		<0.030	97019192	97/04/02		NT				<0.030	97019194	97/04/02		<0.030	97019195	97/04/02	
<0.03	Nickel	0.021	97019193	97/04/02		0.025	97019191	97/04/01		<0.010	97019192	97/04/02		NT				0.424	97019194	97/04/02		0.241	97019195	97/04/02	
<1	Potassium	NT				NT				NT				NT				NT				NT			
<0.005	Selenium	<0.005	97019193	97/04/02	d, *	<0.005	97019191	97/04/01	d,*	<0.005	97019192	97/04/02	d, *	NT				0.006	97019194	97/04/02	d, *	0.006	97019195	97/04/02	d, *
<0.01	Silver	<0.005	97019193	97/04/02		<0.005	97019191	97/04/01		<0.005	97019192	97/04/02		NT				0.196	97019194	97/04/02		<0.005	97019195	97/04/02	
<1	Sodium	NT				NT				NT				NT				NT				NT			
<0.14	Strontium	0.309	97019193	97/04/02		0.792	97019191	97/04/01		0.304	97019192	97/04/02		NT				1.32	97019194	97/04/02		1.47	97019195	97/04/02	
<0.001	Thallium	<0.001	97019193	97/04/02		<0.001	97019191	97/04/01		<0.001	97019192	97/04/02		NT				0.002	97019194	97/04/02	d, **	0.002	97019195	97/04/02	d, **
<0.21	Titanium	<0.025	97019193	97/04/02		<0.025	97019191	97/04/01		<0.025	97019192	97/04/02		NT				0.417	97019194	97/04/02		0.083	97019195	97/04/02	
<0.05	Vanadium	NT				NT				NT				NT				NT				NT			
<0.05	Zinc	0.293	97019193	97/04/02		0.049	97019191	97/04/01		0.02	97019192	97/04/02		NT				4.97	97019194	97/04/02		0.939	97019195	97/04/02	
	8015 MOD(AFFF)																								
<0.10 mg/L	2(2-Butoxyetoxy)Ethanol	NT				NT				<0.1	97019243	97/03/27		<0.1	97019242	97/03/27		<0.1	97019244	97/03/27		<0.1	97019245	97/03/27	
*	Selenium (low recoveries)	53.4%	97019193	97/04/02		24%	97019191	97/04/01		70%	97019192	97/04/02						25.3%	97019194	97/04/02		9.4%	97019195	97/04/02	
**	Thallium (low recovery)																	2.1%	97019194	97/04/02		1.7%	97019195	97/04/02	

WHITEMAN PROJECT 17

DATA SUMMARY FORM

COMMENTS

Wastewater Samples

< - Signifies none detected and the detection limits.
SN : SEE COMMENT.
ABS : Absent

Comment Code

a: HOLD TIME EXCEEDED.
b: RECOVERY OF BROMOFORM WAS BELOW ACCEPTABLE LIMITS IN THE LABORATORY FORTIFIED BLANK.
c: OTHER FUEL HYDROCARBONS ARE PRESENT.
d: SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ORGANIC OR ALKALINE COMPOSITION SELENIUM AND/OR THALLIUM.
e: All pesticides (EPA METHOD 625) were absent qualitatively.
f: Comments for OEHD Sample #: 97019172 POSITIVELY IDENTIFIED VINYL CHLORIDE AT APPROXIMATELY 2.6 UG/L, 1,1,1-TRICHLOROETHANE AT 1.0 UG/L AND TRICHLOROETHENE AT 4.2 UG/L.
g: Comments for OEHD Sample #: 97019173 POSITIVELY IDENTIFIED M AND/OR P-XYLENE AT APPROXIMATELY 1 UG/L. SAMPLE WAS FOAMY
h: Comments for OEHD Sample #: 97019174 POSITIVELY IDENTIFIED M AND/OR P-XYLENE AT APPROXIMATELY 1.3 UG/L AND O-XYLENE AT 0.8 UG/L. SAMPLE WAS FOAMY
j: Comments for OEHD Sample #: 97019255 HEAVY EMULSION. SAMPLE CONTAINED LARGE MOUNTS OF 1-BUTOXY-2-PROPANOL AND 2,2-DIMETHYL PROPANOIC ACID.
k: Comments for OEHD Sample #: 97019256 SAMPLE CONTAINED A MODERATE AMOUNT OF FUEL (HYDRO-CARBONS C11-C16) AND A LARGE AMOUNT OF SILICIC ACID.
l: Comments for OEHD Sample #: 97019257 SAMPLE CONTAINED A MODERATE AMOUNT OF JET FUEL (C11-C17), SILICIC ACID, AND SULFUR.
m: Comments for OEHD Sample #: 97019258 SAMPLE CONTAINED A MODERATE AMOUNT OF JET FUEL (C-11-C17) AND SULFUR.
n: Comments for OEHD Sample #: 97019259 SAMPLE CONTAINED MODERATE AMOUNTS OF FUEL-TYPE HYDROCARBONS, MOST LIKELY JET FUEL.
o: Comments for OEHD Sample #: 97019310 (CN970217, SITE 4) TRACE AMOUNTS OF JP-8.
p: Comments for OEHD Sample #: 97019317 (CN970218, SITE 8) LARGE AMOUNTS OF HYDRAULIC FLUID.
q: Comments for OEHD Sample #: 97019779 SAMPLE ANALYZED BY CAPILLARY COLUMN GC/MS. SAMPLE CONTAINED N-ALKANES C12-C15 (DODECANE THROUGH PENTADECANE). SAMPLE MOST CLOSELY RESEMBLED JP-8.

Reviewed By: Victoria S. Dunovant

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

INORGANIC

Wastewater Samples

(mg/L)

duplicate spike

Method Detection Limit (mg/L)	Compound	Date Collected	97/03/24				97/03/24				97/03/24				97/03/24				97/03/24				97/03/24			
		Sample Numbers	97019597; 601; 604; 608; 612-8				97019598; 605; 609; 619-25				97019600; 607; 611; 633-35				97019751-755; 760; 758-59				97019599; 603; 606; 610; 626-631				97019756-57			
		Tracking Numbers	CN970224 & GN970224				CN970225 & GN970225				CN970227				CN970233 & GN970233				GN970226				GN970234			
			SITE 6				SITE 7				SITE 4				SITE 17				SITE 13				SITE 21			
			Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Group A																									
<10	COD		174	97019612	97/03/26		74	97019619	97/03/26		257	97019633	97/03/26		111	97019751	97/03/31		6320	97019626	97/03/26		NT			
<1	Total Organic Carbon		42	97019612	97/03/26		16	97019619	97/03/26		61	97019633	97/03/26		47.2	97019751	97/03/31		128	97019626	97/03/26		NT			
	Group B																									
<0.3	Oil & Grease		22.4	97019613	97/03/26		5.44	97019620	97/03/26		51.2	97019634	97/03/26		NT				70.4	97019627	97/03/26		54 mg/Bl	97019756	97/03/27	o
<1	TPH		12.8	97019613	97/03/26		4.72	97019620	97/03/26		15.2	97019634	97/03/26		NT				2	97019627	97/03/26		NT			
	Group C																									
<0.2	Ammonia		<0.2	97019614	97/03/27		<0.2	97019621	97/03/27		0.5	97019635	97/03/28		7	97019752	97/04/04		0.8	97019628	97/03/28		NT			
	Kjeldahl Nitrogen		4.1	97019614	97/03/27		2.5	97019621	97/03/27		5	97019635	97/03/28		8.1	97019752	97/04/04		11	97019628	97/03/28		NT			
<0.1	Nitrate+Nitrite		<0.1	97019614	97/03/27		0.22	97019621	97/03/27		0.1	97019635	97/03/28		8	97019752	97/04/04		4.3	97019628	97/03/28		NT			
	Phosphate, Ortho		0.25	97019614	97/03/27		1	97019621	97/03/27		0.45	97019635	97/03/28		7.7	97019752	97/04/04		130	97019628	97/03/28		NT			
<0.10	Phosphorus, Total		0.25	97019614	97/03/27		1.2	97019621	97/03/27		0.45	97019635	97/03/28		8.7	97019752	97/04/04		198	97019628	97/03/28		NT			
	Group D																									
<0.005	Cyanide, Total		<0.005	97019615	97/03/27		<0.005	97019622	97/03/27		NT				0.44	97019753	97/03/27		0.014	97019629	97/03/27		NT			
	Group E																									
<10 ug/L	Phenols		<10	97019616	97/04/01		<10	97019623	97/04/01		NT				115	97019754	97/04/01		164	97019630	97/04/01		NT			
	Group G																									
	Acidity, Total		NT				NT				NT				NT				NT				NT			
	Alkalinity, Total		NT				NT				NT				NT				NT				NT			
	Bromide		NT				NT				NT				NT				NT				NT			
<1	Chloride		40.2	97019617	97/03/26		31.5	97019624	97/03/26		NT				5.7	97019755	97/03/26		<1.0	97019631	97/03/26		NT			
units	Color		NT				NT				NT				NT				NT				NT			
	Langlier Index		NT				NT				NT				NT				NT				NT			
	Residue, Total		NT				NT				NT				NT				NT				NT			
<0.2 mL/L	Residue, Settleable		<0.2	97019617	97/03/26	a	<0.2	97019624	97/03/26	a	NT				0.2	97019755	97/03/26	a	1.8	97019631	97/03/26	a	NT			
<1	Residue, Filterable		344	97019617	97/03/26		552	97019624	97/03/26		NT				30	97019755	97/03/26		6440	97019631	97/03/26		NT			
<1	Residue, Nonfilterable		4	97019617	97/03/26		8	97019624	97/03/26		NT				5	97019755	97/03/26		908	97019631	97/03/26		NT			
<1	Residue, Volatile		NT				NT				NT				NT				NT				NT			
	Silica		NT				NT				NT				NT				NT				NT			
umhos	Specific Conductance		525	97019617	97/03/26		771	97019624	97/03/26		NT				3	97019755	97/03/26		5900	97019631	97/03/26		NT			
<1	Sulfates		93.5	97019617	97/03/26		179.4	97019624	97/03/26		NT				1.5	97019755	97/03/26		5.5	97019631	97/03/26		NT			
	Sulfides		0.2	97019618	97/03/27		0.3	97019625	97/03/28		NT				NT				<0.1	97019632	97/03/28		NT			
<0.1	Surfactants		3.0	97019617	97/03/26	a	1.5	97019624	97/03/26	a	NT				<0.1	97019755	97/03/26	a	8	97019631	97/03/26	a	0.9	97019757	97/03/31	
units	Turbidity		NT				NT				NT				NT				NT				NT			
	Volatile Suspended Solids		7	97019617	97/03/26		8	97019624	97/03/26		NT				2	97019755	97/03/26		496	97019631	97/03/26		NT			

WHITEMAN PROJECT 17

DATA SUMMARY FORM

VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Date Collected	97/03/24				97/03/24				97/03/24				97/03/24				97/03/24				97/03/24			
		Sample Numbers	97019597; 601; 604; 608; 612-8				97019598; 605; 609; 619-25				97019600; 607; 611; 633-35				97019751-755; 760; 758-59				97019599; 603; 606; 610; 626-631				97019756-57			
		Tracking Numbers	CN970224 & GN970224				CN970225 & GN970225				CN970227				CN970233 & GN970233				GN970226				GN970234			
			SITE 6				SITE 7				SITE 4				SITE 17				SITE 13				SITE 21			
			Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	EPA 624 OR 601/602																									
<5.0	Benzene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	4.2	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Bromodichloromethane		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Bromoform		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Bromomethane		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Carbon Tetrachloride		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Chlorobenzene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	10.5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Chloroethane		SN	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	13.8	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	2-Chloroethylvinylether		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Chloroform		8.3	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Chloromethane		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Dibromochloromethane		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	1,2-Dichlorobenzene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	1,3-Dichlorobenzene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	6.6	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	1,4-Dichlorobenzene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	1,1-Dichloroethane		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	5.3	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	1,2-Dichloroethane		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	1,1-Dichloroethene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	12.3	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	trans-1,2-Dichloroethene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	5.7	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	1,2-Dichloropropane		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	4.6	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	cis-1,3-Dichloropropene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	3.8	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	trans-1,3-Dichloropropene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Ethylbenzene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Methylene Chloride		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	5	97019611	97/03/27	b	3.7	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	1,1,2,2-Tetrachloroethane		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	4.2	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Tetrachloroethene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Toluene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	13.5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	1,1,1-Trichloroethane		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	5	97019611	97/03/27	b	9.7	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	1,1,2-Trichloroethane		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	4	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Trichloroethene		<5	97019608	97/03/27	b,f	SN	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	5.4	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Trichlorofluoromethane		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	6.6	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	m-Xylene & p-Xylene		SN	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	<5	97019611	97/03/27	b	<5	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	o-Xylene		<5	97019608	97/03/27	b,f	<5	97019609	97/03/26	b,i	18.8	97019611	97/03/27	b	20.3	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
<5.0	Vinyl Chloride		<5	97019608	97/03/27	b,f	SN	97019609	97/03/26	b,i	12.1	97019611	97/03/27	b	18.6	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			
											<5	97019611	97/03/27	b	5.8	97019760	97/03/26		<5	97019610	97/03/26	b,m	NT			

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/24	97019597; 601; 604; 608; 612-8	CN970224 & GN970224 SITE 6				
		97/03/24	97019598; 605; 609; 619-25	CN970225 & GN970225 SITE 7				
		97/03/24	97019600; 607; 611; 633-35	CN970227 SITE 4				
		97/03/24	97019751-755; 760; 758-59	CN970233 & GN970233 SITE 17				
		97/03/24	97019599; 603; 606; 610; 626-631	GN970226 SITE 13				
		97/03/24	97019756-57	GN970234 SITE 21				
	EPA 625							
<5	Acenaphthylene				<10	97019597	97/03/27	d
	Aldrin				ABSENT	97019597	97/03/27	d,n
<5	Anthracene				<10	97019597	97/03/27	d
	Aroclor 1260				ABSENT	97019597	97/03/27	d,n
<5	Benzidine				<10	97019597	97/03/27	d
<5	Benzo(a)anthracene				<10	97019597	97/03/27	d
<5	Benzo(a)pyrene				<10	97019597	97/03/27	d
<5	Benzo(b)fluoranthene				<10	97019597	97/03/27	d
<5	Benzo(g,h,i)perylene				<10	97019597	97/03/27	d
<5	Benzo(k)fluoranthene				<10	97019597	97/03/27	d
	beta-BHC				ABSENT	97019597	97/03/27	d,n
	delta-BHC				ABSENT	97019597	97/03/27	d,n
<5	Bis(2-chloro ethoxy)methane				<10	97019597	97/03/27	d
<5	Bis(2-chloro ethyl)ether				<10	97019597	97/03/27	d
<5	Bis(2-chloroisopropyl)ether				<10	97019597	97/03/27	d
<5	Bis(2-ethylhexyl)phthalate				95.0	97019597	97/03/27	d
<5	4-Bromophenyl Phenyl Ether				<10	97019597	97/03/27	d
<5	Butylbenzylphthalate				<10	97019597	97/03/27	d
	Chlordane				ABSENT	97019597	97/03/27	d,n
<5	4-chloro-3-methyl Phenol				<10	97019597	97/03/27	d
<5	2-chloronaphthalene				<10	97019597	97/03/27	d
<5	2-chlorophenol				<10	97019597	97/03/27	d
<5	4-chlorophenyl Phenyl Ether				<10	97019597	97/03/27	d
<5	Chrysene				<10	97019597	97/03/27	d
	4,4-DDD				ABSENT	97019597	97/03/27	d,n
	4,4-DDE				ABSENT	97019597	97/03/27	d,n
	4,4-DDT				ABSENT	97019597	97/03/27	d,n
	Dieldrin				ABSENT	97019597	97/03/27	d,n
<5	Dibenzo(a,h)anthracene				<10	97019597	97/03/27	d
<5	1,2-Dichlorobenzene				<10	97019597	97/03/27	d
<5	1,3-Dichlorobenzene				<10	97019597	97/03/27	d
<5	1,4-Dichlorobenzene				<10	97019597	97/03/27	d
<5	3,3-Dichlorobenzidine				<10	97019597	97/03/27	d
<5	2,4-Dichlorophenol				<10	97019597	97/03/27	d
<5	Diethylphthalate				<10	97019597	97/03/27	d
<5	2,4-Dimethylphenol				<10	97019597	97/03/27	d
<5	Dimethylphthalate				<10	97019597	97/03/27	d
<5	Di-n-Butylphthalate				<10	97019597	97/03/27	d
<5	Di-n-Octylphthalate				10.2	97019597	97/03/27	d
<5	4,6-Dinitro-2-Methylphenol				<10	97019597	97/03/27	d

Compound	Result	OE NUMBER	Date	Q
Acenaphthylene	<10	97019598	97/03/27	h
Aldrin	ABSENT	97019598	97/03/27	h,n
Anthracene	<10	97019598	97/03/27	h
Aroclor 1260	ABSENT	97019598	97/03/27	h,n
Benzidine	<10	97019598	97/03/27	h
Benzo(a)anthracene	<10	97019598	97/03/27	h
Benzo(a)pyrene	<10	97019598	97/03/27	h
Benzo(b)fluoranthene	<10	97019598	97/03/27	h
Benzo(g,h,i)perylene	<10	97019598	97/03/27	h
Benzo(k)fluoranthene	<10	97019598	97/03/27	h
beta-BHC	ABSENT	97019598	97/03/27	h,n
delta-BHC	ABSENT	97019598	97/03/27	h,n
Bis(2-chloro ethoxy)methane	<10	97019598	97/03/27	h
Bis(2-chloro ethyl)ether	<10	97019598	97/03/27	h
Bis(2-chloroisopropyl)ether	<10	97019598	97/03/27	h
Bis(2-ethylhexyl)phthalate	<10	97019598	97/03/27	h
4-Bromophenyl Phenyl Ether	<10	97019598	97/03/27	h
Butylbenzylphthalate	<10	97019598	97/03/27	h
Chlordane	ABSENT	97019598	97/03/27	h,n
4-chloro-3-methyl Phenol	<10	97019598	97/03/27	h
2-chloronaphthalene	<10	97019598	97/03/27	h
2-chlorophenol	<10	97019598	97/03/27	h
4-chlorophenyl Phenyl Ether	<10	97019598	97/03/27	h
Chrysene	<10	97019598	97/03/27	h
4,4-DDD	ABSENT	97019598	97/03/27	h,n
4,4-DDE	ABSENT	97019598	97/03/27	h,n
4,4-DDT	ABSENT	97019598	97/03/27	h,n
Dieldrin	ABSENT	97019598	97/03/27	h,n
Dibenzo(a,h)anthracene	<10	97019598	97/03/27	h
1,2-Dichlorobenzene	<10	97019598	97/03/27	h
1,3-Dichlorobenzene	<10	97019598	97/03/27	h
1,4-Dichlorobenzene	<10	97019598	97/03/27	h
3,3-Dichlorobenzidine	<10	97019598	97/03/27	h
2,4-Dichlorophenol	<10	97019598	97/03/27	h
Diethylphthalate	<10	97019598	97/03/27	h
2,4-Dimethylphenol	<10	97019598	97/03/27	h
Dimethylphthalate	<10	97019598	97/03/27	h
Di-n-Butylphthalate	<10	97019598	97/03/27	h
Di-n-Octylphthalate	<10	97019598	97/03/27	h
4,6-Dinitro-2-Methylphenol	<10	97019598	97/03/27	h

Compound	Result	OE NUMBER	Date	Q
Acenaphthylene	<10	97019600	97/03/27	j
Aldrin	ABSENT	97019600	97/03/27	j,n
Anthracene	<10	97019600	97/03/27	j
Aroclor 1260	ABSENT	97019600	97/03/27	j,n
Benzidine	<10	97019600	97/03/27	j
Benzo(a)anthracene	<10	97019600	97/03/27	j
Benzo(a)pyrene	<10	97019600	97/03/27	j
Benzo(b)fluoranthene	<10	97019600	97/03/27	j
Benzo(g,h,i)perylene	<10	97019600	97/03/27	j
Benzo(k)fluoranthene	<10	97019600	97/03/27	j
beta-BHC	ABSENT	97019600	97/03/27	j,n
delta-BHC	ABSENT	97019600	97/03/27	j,n
Bis(2-chloro ethoxy)methane	<10	97019600	97/03/27	j
Bis(2-chloro ethyl)ether	<10	97019600	97/03/27	j
Bis(2-chloroisopropyl)ether	<10	97019600	97/03/27	j
Bis(2-ethylhexyl)phthalate	105	97019600	97/03/27	j
4-Bromophenyl Phenyl Ether	<10	97019600	97/03/27	j
Butylbenzylphthalate	<10	97019600	97/03/27	j
Chlordane	ABSENT	97019600	97/03/27	j,n
4-chloro-3-methyl Phenol	<10	97019600	97/03/27	j
2-chloronaphthalene	<10	97019600	97/03/27	j
2-chlorophenol	<10	97019600	97/03/27	j
4-chlorophenyl Phenyl Ether	<10	97019600	97/03/27	j
Chrysene	<10	97019600	97/03/27	j
4,4-DDD	ABSENT	97019600	97/03/27	j,n
4,4-DDE	ABSENT	97019600	97/03/27	j,n
4,4-DDT	ABSENT	97019600	97/03/27	j,n
Dieldrin	ABSENT	97019600	97/03/27	j,n
Dibenzo(a,h)anthracene	<10	97019600	97/03/27	j
1,2-Dichlorobenzene	<10	97019600	97/03/27	j
1,3-Dichlorobenzene	<10	97019600	97/03/27	j
1,4-Dichlorobenzene	<10	97019600	97/03/27	j
3,3-Dichlorobenzidine	<10	97019600	97/03/27	j
2,4-Dichlorophenol	<10	97019600	97/03/27	j
Diethylphthalate	<10	97019600	97/03/27	j
2,4-Dimethylphenol	<10	97019600	97/03/27	j
Dimethylphthalate	<10	97019600	97/03/27	j
Di-n-Butylphthalate	<10	97019600	97/03/27	j
Di-n-Octylphthalate	<10	97019600	97/03/27	j
4,6-Dinitro-2-Methylphenol	<10	97019600	97/03/27	j

Compound	Result	OE NUMBER	Date	Q
Acenaphthylene	<10	97019758	97/03/27	k
Aldrin	ABSENT	97019758	97/03/27	k,n
Anthracene	24.6	97019758	97/03/27	k
Aroclor 1260	ABSENT	97019758	97/03/27	k,n
Benzidine	<10	97019758	97/03/27	k
Benzo(a)anthracene	<10	97019758	97/03/27	k
Benzo(a)pyrene	<10	97019758	97/03/27	k
Benzo(b)fluoranthene	<10	97019758	97/03/27	k
Benzo(g,h,i)perylene	<10	97019758	97/03/27	k
Benzo(k)fluoranthene	<10	97019758	97/03/27	k
beta-BHC	14.3	97019758	97/03/27	k
delta-BHC	ABSENT	97019758	97/03/27	k,n
Bis(2-chloro ethoxy)methane	ABSENT	97019758	97/03/27	k,n
Bis(2-chloro ethyl)ether	<10	97019758	97/03/27	k
Bis(2-chloroisopropyl)ether	<10	97019758	97/03/27	k
Bis(2-ethylhexyl)phthalate	<10	97019758	97/03/27	k
4-Bromophenyl Phenyl Ether	66	97019758	97/03/27	k
Butylbenzylphthalate	<10	97019758	97/03/27	k
Chlordane	48.2	97019758	97/03/27	k
4-chloro-3-methyl Phenol	ABSENT	97019758	97/03/27	k,n
2-chloronaphthalene	<10	97019758	97/03/27	k
2-chlorophenol	<10	97019758	97/03/27	k
4-chlorophenyl Phenyl Ether	<10	97019758	97/03/27	k
Chrysene	17.8	97019758	97/03/27	k
4,4-DDD	ABSENT	97019758	97/03/27	k,n
4,4-DDE	ABSENT	97019758	97/03/27	k,n
4,4-DDT	ABSENT	97019758	97/03/27	k,n
Dieldrin	ABSENT	97019758	97/03/27	k,n
Dibenzo(a,h)anthracene	<10	97019758	97/03/27	k
1,2-Dichlorobenzene	<10	97019758	97/03/27	k
1,3-Dichlorobenzene	53.8	97019758	97/03/27	k
1,4-Dichlorobenzene	<10	97019758	97/03/27	k
3,3-Dichlorobenzidine	66.1	97019758	97/03/27	k
2,4-Dichlorophenol	<10	97019758	97/03/27	k
Diethylphthalate	<10	97019758	97/03/27	k
2,4-Dimethylphenol	<10	97019758	97/03/27	k
Dimethylphthalate	<10	97019758	97/03/27	k
Di-n-Butylphthalate	<10	97019758	97/03/27	k
Di-n-Octylphthalate	<10	97019758	97/03/27	k
4,6-Dinitro-2-Methylphenol	<10	97019758	97/03/27	k

Compound	Result	OE NUMBER	Date	Q
Acenaphthylene	<10	97019599	97/03/27	l
Aldrin	ABSENT	97019599	97/03/27	l,n
Anthracene	<10	97019599	97/03/27	l
Aroclor 1260	ABSENT	97019599	97/03/27	l,n
Benzidine	<10	97019599	97/03/27	l
Benzo(a)anthracene	<10	97019599	97/03/27	l
Benzo(a)pyrene	<10	97019599	97/03/27	l
Benzo(b)fluoranthene	<10	97019599	97/03/27	l
Benzo(g,h,i)perylene	<10	97019599	97/03/27	l
Benzo(k)fluoranthene	<10	97019599	97/03/27	l
beta-BHC	<10	97019599	97/03/27	l
delta-BHC	ABSENT	97019599	97/03/27	l,n
Bis(2-chloro ethoxy)methane	ABSENT	97019599	97/03/27	l,n
Bis(2-chloro ethyl)ether	<10	97019599	97/03/27	l
Bis(2-chloroisopropyl)ether	<10	97019599	97/03/27	l
Bis(2-ethylhexyl)phthalate	<10	97019599	97/03/27	l
4-Bromophenyl Phenyl Ether	353	97019599	97/03/27	l
Butylbenzylphthalate	<10	97019599	97/03/27	l
Chlordane	<10	97019599	97/03/27	l
4-chloro-3-methyl Phenol	ABSENT	97019599	97/03/27	l,n
2-chloronaphthalene	<10	97019599	97/03/27	l
2-chlorophenol	<10	97019599	97/03/27	l
4-chlorophenyl Phenyl Ether	<10	97019599	97/03/27	l
Chrysene	<10	97019599	97/03/27	l
4,4-DDD	ABSENT	97019599	97/03/27	l,n
4,4-DDE	ABSENT	97019599	97/03/27	l,n
4,4-DDT	ABSENT	97019599	97/03/27	l,n
Dieldrin	ABSENT	97019599	97/03/27	l,n
Dibenzo(a,h)anthracene	<10	97019599	97/03/27	l
1,2-Dichlorobenzene	<10	97019599	97/03/27	l
1,3-Dichlorobenzene	<10	97019599	97/03/27	l
1,4-Dichlorobenzene	<10	97019599	97/03/27	l
3,3-Dichlorobenzidine	<10	97019599	97/03/27	l
2,4-Dichlorophenol	<10	97019599	97/03/27	l
Diethylphthalate	<10	97019599	97/03/27	l
2,4-Dimethylphenol	<10	97019599	97/03/27	l
Dimethylphthalate	<10	97019599	97/03/27	l
Di-n-Butylphthalate	<10	97019599	97/03/27	l
Di-n-Octylphthalate	<10	97019599	97/03/27	l
4,6-Dinitro-2-Methylphenol	<10	97019599	97/03/27	l

Compound	Result	OE NUMBER	Date	Q
Acenaphthylene	NT			
Aldrin				
Anthracene	NT			
Aroclor 1260				
Benzidine	NT			
Benzo(a)anthracene	NT			
Benzo(a)pyrene	NT			
Benzo(b)fluoranthene	NT			
Benzo(g,h,i)perylene	NT			
Benzo(k)fluoranthene	NT			
beta-BHC	NT			
delta-BHC				
Bis(2-chloro ethoxy)methane				
Bis(2-chloro ethyl)ether	NT			
Bis(2-chloroisopropyl)ether	NT			
Bis(2-ethylhexyl)phthalate	NT			
4-Bromophenyl Phenyl Ether	NT			
Butylbenzylphthalate	NT			
Chlordane	NT			
4-chloro-3-methyl Phenol				
2-chloronaphthalene	NT			
2-chlorophenol	NT			
4-chlorophenyl Phenyl Ether	NT			
Chrysene	NT			
4,4-DDD				
4,4-DDE				
4,4-DDT				
Dieldrin				
Dibenzo(a,h)anthracene				
1,2-Dichlorobenzene	NT			
1,3-Dichlorobenzene	NT			
1,4-Dichlorobenzene	NT			
3,3-Dichlorobenzidine	NT			
2,4-Dichlorophenol	NT			
Diethylphthalate	NT			
2,4-Dimethylphenol	NT			
Dimethylphthalate	NT			
Di-n-Butylphthalate	NT			
Di-n-Octylphthalate	NT			
4,6-Dinitro-2-Methylphenol	NT			

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS (cont'd)

Wastewater Samples

(ug/L)

Method Detection Limit (ug/L)	Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
		97/03/24	97019597; 601; 604; 608; 612-8	CN970224 & GN970224	SITE 6			
<5	2,4-Dinitrophenol				<10	97019597	97/03/27	d
<5	2,6-Dinitrotoluene				<10	97019597	97/03/27	d
<5	2,4-Dinitrotoluene				<10	97019597	97/03/27	d
<5	Fluoranthene				<10	97019597	97/03/27	d
<5	Fluorene				<10	97019597	97/03/27	d
<5	Hexachlorobenzene				<10	97019597	97/03/27	d
<5	Hexachlorobutadiene				<10	97019597	97/03/27	d
<5	Hexachlorocyclopentadiene				<10	97019597	97/03/27	d
<5	Hexachloroethane				<10	97019597	97/03/27	d
<5	Indeno(1,2,3-c,d)pyrene				<10	97019597	97/03/27	d
<5	Isophorone				<10	97019597	97/03/27	d
	4,4-Methylenedianiline				<10	97019597	97/03/27	d
<5	Naphthalene				<10	97019597	97/03/27	d
	N-Nitrosodi-n-Propylamine				<10	97019597	97/03/27	d
<5	N-Nitrosodiphenylamine				<10	97019597	97/03/27	d
<5	Nitrobenzene				<10	97019597	97/03/27	d
<5	2-Nitrophenol				<10	97019597	97/03/27	d
<5	4-Nitrophenol				<10	97019597	97/03/27	d
<5	Pentachlorophenol				<10	97019597	97/03/27	d
<5	Phenanthrene				<10	97019597	97/03/27	d
<5	Phenol				<10	97019597	97/03/27	d
<5	Pyrene				<10	97019597	97/03/27	d
	Toxaphene				ABSENT	97019597	97/03/27	d,n
<5	1,2,4-Trichlorobenzene				<10	97019597	97/03/27	d
<5	2,4,6-Trichlorophenol				<10	97019597	97/03/27	d

Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	97/03/24	97019598; 605; 609; 619-25	CN970225 & GN970225	SITE 7			
2,4-Dinitrophenol				<10	97019598	97/03/27	h
2,6-Dinitrotoluene				<10	97019598	97/03/27	h
2,4-Dinitrotoluene				<10	97019598	97/03/27	h
Fluoranthene				<10	97019598	97/03/27	h
Fluorene				<10	97019598	97/03/27	h
Hexachlorobenzene				<10	97019598	97/03/27	h
Hexachlorobutadiene				<10	97019598	97/03/27	h
Hexachlorocyclopentadiene				<10	97019598	97/03/27	h
Hexachloroethane				<10	97019598	97/03/27	h
Indeno(1,2,3-c,d)pyrene				<10	97019598	97/03/27	h
Isophorone				<10	97019598	97/03/27	h
4,4-Methylenedianiline				<10	97019598	97/03/27	h
Naphthalene				<10	97019598	97/03/27	h
N-Nitrosodi-n-Propylamine				<10	97019598	97/03/27	h
N-Nitrosodiphenylamine				<10	97019598	97/03/27	h
Nitrobenzene				<10	97019598	97/03/27	h
2-Nitrophenol				<10	97019598	97/03/27	h
4-Nitrophenol				<10	97019598	97/03/27	h
Pentachlorophenol				<10	97019598	97/03/27	h
Phenanthrene				<10	97019598	97/03/27	h
Phenol				<10	97019598	97/03/27	h
Pyrene				<10	97019598	97/03/27	h
Toxaphene				ABSENT	97019598	97/03/27	h,n
1,2,4-Trichlorobenzene				<10	97019598	97/03/27	h
2,4,6-Trichlorophenol				<10	97019598	97/03/27	h

Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	97/03/24	97019600; 607; 611; 633-35	CN970227	SITE 4			
2,4-Dinitrophenol				<10	97019600	97/03/27	j
2,6-Dinitrotoluene				<10	97019600	97/03/27	j
2,4-Dinitrotoluene				<10	97019600	97/03/27	j
Fluoranthene				<10	97019600	97/03/27	j
Fluorene				<10	97019600	97/03/27	j
Hexachlorobenzene				<10	97019600	97/03/27	j
Hexachlorobutadiene				<10	97019600	97/03/27	j
Hexachlorocyclopentadiene				<10	97019600	97/03/27	j
Hexachloroethane				<10	97019600	97/03/27	j
Indeno(1,2,3-c,d)pyrene				<10	97019600	97/03/27	j
Isophorone				<10	97019600	97/03/27	j
4,4-Methylenedianiline				<10	97019600	97/03/27	j
Naphthalene				<10	97019600	97/03/27	j
N-Nitrosodi-n-Propylamine				<10	97019600	97/03/27	j
N-Nitrosodiphenylamine				<10	97019600	97/03/27	j
Nitrobenzene				<10	97019600	97/03/27	j
2-Nitrophenol				<10	97019600	97/03/27	j
4-Nitrophenol				<10	97019600	97/03/27	j
Pentachlorophenol				<10	97019600	97/03/27	j
Phenanthrene				<10	97019600	97/03/27	j
Phenol				<10	97019600	97/03/27	j
Pyrene				<10	97019600	97/03/27	j
Toxaphene				ABSENT	97019600	97/03/27	j,n
1,2,4-Trichlorobenzene				<10	97019600	97/03/27	j
2,4,6-Trichlorophenol				<10	97019600	97/03/27	j

Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	97/03/24	97019751-755; 760; 758-59	CN970233 & GN970233	SITE 17			
2,4-Dinitrophenol				<10	97019758	97/03/27	k
2,6-Dinitrotoluene				<10	97019758	97/03/27	k
2,4-Dinitrotoluene				31.4	97019758	97/03/27	k
Fluoranthene				<10	97019758	97/03/27	k
Fluorene				65.7	97019758	97/03/27	k
Hexachlorobenzene				26.2	97019758	97/03/27	k
Hexachlorobutadiene				<10	97019758	97/03/27	k
Hexachlorocyclopentadiene				<10	97019758	97/03/27	k
Hexachloroethane				<10	97019758	97/03/27	k
Indeno(1,2,3-c,d)pyrene				<10	97019758	97/03/27	k
Isophorone				<10	97019758	97/03/27	k
4,4-Methylenedianiline				<10	97019758	97/03/27	k
Naphthalene				<10	97019758	97/03/27	k
N-Nitrosodi-n-Propylamine				22.8	97019758	97/03/27	k
N-Nitrosodiphenylamine				<10	97019758	97/03/27	k
Nitrobenzene				<10	97019758	97/03/27	k
2-Nitrophenol				<10	97019758	97/03/27	k
4-Nitrophenol				<10	97019758	97/03/27	k
Pentachlorophenol				<10	97019758	97/03/27	k
Phenanthrene				<10	97019758	97/03/27	k
Phenol				26.7	97019758	97/03/27	k
Pyrene				<10	97019758	97/03/27	k
Toxaphene				49.1	97019758	97/03/27	k
1,2,4-Trichlorobenzene				ABSENT	97019758	97/03/27	k,n
2,4,6-Trichlorophenol				41.1	97019758	97/03/27	k
				<10	97019758	97/03/27	K

Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	97/03/24	97019599; 603; 606; 610; 628-631	GN970226	SITE 13			
2,4-Dinitrophenol				<10	97019599	97/03/27	l
2,6-Dinitrotoluene				<10	97019599	97/03/27	l
2,4-Dinitrotoluene				<10	97019599	97/03/27	l
Fluoranthene				<10	97019599	97/03/27	l
Fluorene				<10	97019599	97/03/27	l
Hexachlorobenzene				<10	97019599	97/03/27	l
Hexachlorobutadiene				<10	97019599	97/03/27	l
Hexachlorocyclopentadiene				<10	97019599	97/03/27	l
Hexachloroethane				<10	97019599	97/03/27	l
Indeno(1,2,3-c,d)pyrene				<10	97019599	97/03/27	l
Isophorone				<10	97019599	97/03/27	l
4,4-Methylenedianiline				<10	97019599	97/03/27	l
Naphthalene				<10	97019599	97/03/27	l
N-Nitrosodi-n-Propylamine				<10	97019599	97/03/27	l
N-Nitrosodiphenylamine				<10	97019599	97/03/27	l
Nitrobenzene				<10	97019599	97/03/27	l
2-Nitrophenol				<10	97019599	97/03/27	l
4-Nitrophenol				<10	97019599	97/03/27	l
Pentachlorophenol				<10	97019599	97/03/27	l
Phenanthrene				<10	97019599	97/03/27	l
Phenol				<10	97019599	97/03/27	l
Pyrene				<10	97019599	97/03/27	l
Toxaphene				ABSENT	97019599	97/03/27	l,n
1,2,4-Trichlorobenzene				<10	97019599	97/03/27	l
2,4,6-Trichlorophenol				<10	97019599	97/03/27	l

Compound	Date Collected	Sample Numbers	Tracking Numbers	Result	OE NUMBER	Date	Q
	97/03/24	97019756-57	GN970234	SITE 21			
2,4-Dinitrophenol				NT			
2,6-Dinitrotoluene				NT			
2,4-Dinitrotoluene				NT			
Fluoranthene				NT			
Fluorene				NT			
Hexachlorobenzene				NT			
Hexachlorobutadiene				NT			
Hexachlorocyclopentadiene				NT			
Hexachloroethane				NT			
Indeno(1,2,3-c,d)pyrene				NT			
Isophorone				NT			
4,4-Methylenedianiline				NT			
Naphthalene				NT			
N-Nitrosodi-n-Propylamine				NT			
N-Nitrosodiphenylamine				NT			
Nitrobenzene				NT			
2-Nitrophenol				NT			
4-Nitrophenol				NT			
Pentachlorophenol				NT			
Phenanthrene				NT			
Phenol				NT			
Pyrene				NT			
Toxaphene				NT			
1,2,4-Trichlorobenzene				NT			
2,4,6-Trichlorophenol				NT			

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

METALS

Wastewater Samples

(mg/L)

Method Detection Limit (mg/L)	Compound	Date Collected	97/03/24				97/03/24				97/03/24				97/03/24				97/03/24				97/03/24			
		Sample Numbers	97019597; 601; 604; 608; 612-8				97019598; 605; 609; 619-25				97019600; 607; 611; 633-35				97019751-755; 760; 758-59				97019599; 603; 606; 610; 626-631				97019756-57			
		Tracking Numbers	CN970224 & GN970224				CN970225 & GN970225				CN970227				CN970233 & GN970233				GN970226				GN970234			
			SITE 6				SITE 7				SITE 4				SITE 17				SITE 13				SITE 21			
			Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Group F																									
<0.030	Aluminum		0.054	97019604	97/04/01		0.015	97019605	97/04/01		0.092	97019607	97/04/03		0.621	97019759	97/04/03		13.9	97019606	97/04/02		NT			
<0.003	Antimony		<0.003	97019604	97/04/01		<0.003	97019605	97/04/01		0.003	97019607	97/04/03		0.147	97019759	97/04/03		0.209	97019606	97/04/02		NT			
<0.005	Arsenic		<0.005	97019604	97/04/01		<0.005	97019605	97/04/01		<0.005	97019607	97/04/03		0.048	97019759	97/04/03		0.007	97019606	97/04/02		NT			
<0.050	Barium		0.037	97019604	97/04/01		0.038	97019605	97/04/01		0.038	97019607	97/04/03		0.326	97019759	97/04/03		2.76	97019606	97/04/02		NT			
<0.001	Beryllium		<0.0005	97019604	97/04/01		<0.0005	97019605	97/04/01		<0.0005	97019607	97/04/03		0.1	97019759	97/04/03		0.0056	97019606	97/04/02		NT			
<0.05	Boron		NT				NT				NT				NT				NT				NT			
<0.001	Cadmium		0.002	97019604	97/04/01		0.002	97019605	97/04/01		0.002	97019607	97/04/03		0.088	97019759	97/04/03		2.36	97019606	97/04/02		NT			
<1	Calcium		NT				NT				NT				NT				NT				NT			
<0.01	Chromium		<0.005	97019604	97/04/01		<0.005	97019605	97/04/01		<0.005	97019607	97/04/03		0.249	97019759	97/04/03		0.845	97019606	97/04/02		NT			
<0.05	Cobalt		<0.025	97019604	97/04/01		<0.025	97019605	97/04/01		<0.025	97019607	97/04/03		0.617	97019759	97/04/03		0.038	97019606	97/04/02		NT			
<0.02	Copper		0.022	97019604	97/04/01		0.01	97019605	97/04/01		0.029	97019607	97/04/03		0.483	97019759	97/04/03		9.23	97019606	97/04/02		NT			
<0.03	Iron		0.161	97019604	97/04/01		0.394	97019605	97/04/01		0.223	97019607	97/04/03		0.134	97019759	97/04/03		30.3	97019606	97/04/02		NT			
<0.02	Lead		0.003	97019604	97/04/01		0.005	97019605	97/04/01		0.004	97019607	97/04/03		0.479	97019759	97/04/03		6.42	97019606	97/04/02		NT			
<1	Magnesium		NT				NT				NT				NT				NT				NT			
<0.03	Manganese		NT				NT				NT				NT				NT				NT			
<0.0002	Mercury		<0.0002	97019604	97/04/01		<0.0002	97019605	97/04/01		<0.0002	97019607	97/04/03		0.0003	97019759	97/04/03		<0.0002	97019606	97/04/02		NT			
<0.03	Molybdenum		<0.030	97019604	97/04/01		<0.030	97019605	97/04/01		<0.030	97019607	97/04/03		0.215	97019759	97/04/03		0.238	97019606	97/04/02		NT			
<0.03	Nickel		<0.010	97019604	97/04/01		<0.010	97019605	97/04/01		<0.010	97019607	97/04/03		0.352	97019759	97/04/03		0.756	97019606	97/04/02		NT			
<1	Potassium		NT				NT				NT				NT				NT				NT			
<0.005	Selenium		<0.005	97019604	97/04/01	c,*	<0.005	97019605	97/04/01	c,*	<0.005	97019607	97/04/03	c,*	0.17	97019759	97/04/03		0.006	97019606	97/04/02		NT			
<0.01	Silver		<0.005	97019604	97/04/01		<0.005	97019605	97/04/01		<0.005	97019607	97/04/03		0.098	97019759	97/04/03		0.337	97019606	97/04/02		NT			
<1	Sodium		NT				NT				NT				NT				NT				NT			
<0.14	Strontium		0.316	97019604	97/04/01		0.48	97019605	97/04/01		0.318	97019607	97/04/03		0.417	97019759	97/04/03		1.77	97019606	97/04/02		NT			
<0.001	Thallium		<0.001	97019604	97/04/01		<0.001	97019605	97/04/01		<0.001	97019607	97/04/03		0.001	97019759	97/04/03		<0.001	97019606	97/04/02		NT			
<0.21	Titanium		<0.025	97019604	97/04/01		<0.025	97019605	97/04/01		<0.025	97019607	97/04/03		<0.025	97019759	97/04/03		0.39	97019606	97/04/02		NT			
<0.05	Vanadium		NT				NT				NT				NT				NT				NT			
<0.05	Zinc		0.036	97019604	97/04/01		0.029	97019605	97/04/01		0.074	97019607	97/04/03		0.518	97019759	97/04/03		21	97019606	97/04/02		NT			
	8015 MOD (AFFF)																									
<0.10 mg/L	2(2-Butoxyetoxy)Ethanol		<0.1	97019601	97/04/02		<0.1	97019602	97/04/02		NT				NT				0.202	97019603	97/04/04		NT			
c *	Selenium (low recoveries)		64.7%	97019604	97/04/01		44.2%	97019602	97/04/01		56%	97019607	97/04/03													
**	Thallium																									

WHITEMAN PROJECT 17

DATA SUMMARY FORM

COMMENTS

Wastewater Samples

< - Signifies none detected and the detection limits.
SN : SEE COMMENTS
ABS : Absent

Comment Code

a: HOLD TIME EXCEEDED
b: OTHER FUEL HYDROCARBONS ARE PRESENT.
c: SAMPLE SPIKE RECOVERIES ARE LOW DUE TO ORGANIC OR ALKALINE COMPOSITION FOR SELENIUM AND/OR THALLIUM
d: Comments for OEHD Sample #: 97019597 - HEAVY EMULSION. SAMPLE CONTAINED SMALL AMOUNT OF FUEL TYPE HYDROCARBONS
e: Comments for OEHD Sample #: 97019604 - FOR SELENIUM 64.7%
f: Comments for OEHD Sample #: 97019608 - Comments for OEHD Sample #: 97019608 CHLOROETHANE DETECTED AT APPROXIMATELY 3.9 UG/L. M,P-XYLENES DETECTED AT APROXIMATELY 1.0 UG/L.
h: Comments for OEHD Sample #: 97019598 - HEAVY EMULSION. SAMPLE CONTAINED SMALL QUANTITY OF JET-TYPE FUEL.
i: Comments for OEHD Sample #: 97019609 - VINYL CHLORIDE DETECTED AT APROXIMATELY 2 UG/L. TRICHLOROETHYLENE DETECTED AT APROXIMATELY 4 UG/L. OTHER FUEL HYDROCARBONS ARE PRESENT.
j: Comments for OEHD Sample #: 97019600 - HEAVY EMULSION. SAMPLE CONTAINED SMALL AMOUNTS OF FUEL-TYPE HYDROCARBONS AND SULFUR.
k: Comments for OEHD Sample #: 97019758 - SAMPLE ALSO CONTAINED APPROXMATELY 142 UG/L OF DIBENZOFURAN (CALCULATED ESTIMATE BASED ON RESPONSE RELATIVE TO INTERNAL STANDARD ACENAPHTHENE-D 8).
l: Comments for OEHD Sample #: 97019599 - VERY HEAVY EMULSION. SAMPLE CONTAINED VERY LARGE AMOUNT OF HYDROCARBON COMPOUNDS MOST LIKELY FROM LUBRICATING OIL.
m: Comments for OEHD Sample #: 97019610 - LIMONENE TENTATIVELY IDENTIFY AT 10 UG/L. OTHER FUEL HYDROCARBONS ARE PRESENT.
n: All pesticides (EPA 625) were absent qualitatively.
o: Result is 54 mg/bottle (ERA QC)

Reviewed By: Victoria S. Dunovant

VICTORIA S. DUNOVANT, Lt Col, USAF, BSC
Chief, Environmental Chemistry Branch

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WHITEMAN PROJECT 17

DATA SUMMARY FORM

INORGANIC

Wastewater Samples

(mg/L)

Method																									
	Date Collected	97/03/25				97/03/25				97/03/25				97/03/25				97/03/25				97/03/25			
	Sample Numbers	97019797; 807; 834-40; 971				97019792; 798; 804; 808; 841-847				97019793; 799; 804; 809; 848-854				97019794; 800; 805; 810; 855-57				97019801; 858-64				97019795; 806; 811; 865			
Detection	Tracking Numbers	CN970228 & GN970228				CN970229 & GN970229				CN970230 & GN970230				CN970231 & GN970231				CN970232 & GN970232				CN970249 & GN970249			
Limit		SITE 6				SITE 7				SITE 10				SITE 12				SITE 9				SITE 8			
(mg/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	Group A																								
<10	COD	126	97019834	97/03/31		66	97019841	97/03/31		<10	97019848	97/03/31		3680	97019855	97/03/31		28	97019858	97/03/31		NT			
<1	Total Organic Carbon	27	97019834	97/03/31		17	97019841	97/03/31		4	97019848	97/03/31		252	97019855	97/03/31		9	97019858	97/03/31		NT			
	Group B																								
<0.3	Oil & Grease	7.76	97019835	97/03/27		14.4	97019842	97/03/27		288	97019849	97/03/27		97.6	97019856	97/03/27		NT				696	97019865	97/03/27	
<1	TPH	0.8	97019835	97/03/27		12.8	97019842	97/03/27		128	97019849	97/03/27	r	82.4	97019856	97/03/27	s	NSR	97019859			690	97019865	97/03/27	
	Group C																								
<0.2	Ammonia	0.37	97019836	97/04/02		1.07	97019843	97/04/02		0.85	97019850	97/04/02		7.25	97019857	97/04/02		<0.2	97019860	97/04/02		NT			
	Kjeldahl Nitrogen	3.2	97019836	97/04/02		2.7	97019843	97/04/02		1.4	97019850	97/04/02		20	97019857	97/04/02		1.1	97019860	97/04/02		NT			
<0.1	Nitrate+Nitrite	0.9	97019836	97/04/02		0.24	97019843	97/04/02		1.3	97019850	97/04/02		13.4	97019857	97/04/02		0.22	97019860	97/04/02		NT			
	Phosphate, Ortho	0.35	97019836	97/04/02		2.3	97019843	97/04/02		<0.1	97019850	97/04/02		265	97019857	97/04/02		1.2	97019860	97/04/02		NT			
<0.10	Phosphorus, Total	0.48	97019836	97/04/02		3.95	97019843	97/04/02		<0.1	97019850	97/04/02		290	97019857	97/04/02		1.2	97019860	97/04/02		NT			
	Group D																								
<0.005	Cyanide, Total	<0.005	97019837	97/04/01		<0.005	97019844	97/04/01		<0.005	97019851	97/04/01		NT				<0.005	97019861	97/04/01		NT			
	Group E																								
<10 ug/L	Phenols	12	97019838	97/04/01		10	97019845	97/04/01		<10	97019852	97/04/01		NT				<10	97019862	97/04/01		NT			
	Group G																								
	Acidity, Total	NT				NT				NT				NT				NT				NT			
	Alkalinity, Total	NT				NT				NT				NT				NT				NT			
	Bromide	NT				NT				NT				NT				NT				NT			
<1	Chloride	38.9	97019839	97/03/31		25.6	97019846	97/03/31		10.9	97019853	97/03/31		NT				27.5	97019863	97/03/31		NT			
units	Color	NT				NT				NT				NT				NT				NT			
	Langlier Index	NT				NT				NT				NT				NT				NT			
<1	Residue, Total	NT				NT				NT				NT				NT				NT			
<ml/L	Residue, Settleable	<0.2	97019839	97/03/31	a	0.3	97019846	97/03/31	a	0.4	97019853	97/03/31	a	NT				20	97019863	97/03/31		NT			
<1	Residue, Filterable	347	97019839	97/03/31		448	97019846	97/03/31		690	97019853	97/03/31		NT				914	97019863	97/03/31		NT			
<1	Residue, Nonfilterable	10	97019839	97/03/31		16	97019846	97/03/31		8	97019853	97/03/31		NT				128	97019863	97/03/31		NT			
<1	Residue, Volatile	NT				NT				NT				NT				NT				NT			
	Silica	NT				NT				NT				NT				NT				NT			
umhos	Specific Conductance	398	97019839	97/03/31		527	97019846	97/03/31		732	97019853	97/03/31		NT				949	97019863	97/03/31		NT			
<1	Sulfates	80.3	97019839	97/03/31		158.6	97019846	97/03/31		298.6	97019853	97/03/31		NT				389.6	97019863	97/03/31		NT			
	Sulfides	0.2	97019840	97/04/07	a	<0.1	97019847	97/04/07	a	<0.1	97019854	97/04/07	a	NT				<1	97019864	97/04/07		NT			
<0.1	Surfactants	1.5	97019839	97/03/31	a	1.2	97019846	97/03/31	a	<0.1	97019853	97/03/31	a	NT				0.5	97019863	97/03/31		NT			
<1	Turbidity	NT				NT				NT				NT				NT				NT			
<1	Volatile Suspended Solids	9	97019839	97/03/31		10	97019846	97/03/31		4	97019853	97/03/31		NT				24	97019863	97/03/31		NT			

VHITEMAN PROJECT 17

DATA SUMMARY FORM

VOLATILE ORGANICS

Wastewater Samples

(ug/L)

	Date Collected	97/03/25				97/03/25				97/03/25				97/03/25				97/03/25				97/03/25			
ethod	Sample Numbers	97019797; 807; 834-40; 971				97019792; 798; 804; 808; 841-847				97019793; 799; 804; 809; 848-854				97019794; 800; 805; 810; 855-57				97019801; 858-64				97019795; 806; 811; 865			
etection	Tracking Numbers	CN970228 & GN970228				CN970229 & GN970229				CN970230 & GN970230				CN970231 & GN970231				CN970232 & GN970232				CN970249 & GN970249			
mit		SITE 6				SITE 7				Ssite 10				Site 12				SITE 9				SITE 8			
ig/L)	Compound	Result	OE NUMBE	Date	Q	Result	OE NUMBER	Date	Q	Result	E NUMBE	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	EPA 624 OR 601/602																								
<5.0	Benzene	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Bromodichloromethane	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Bromoform	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Bromomethane	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Carbon Tetrachloride	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Chlorobenzene	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Chloroethane	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	2-Chloroethylvinylether	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Chloroform	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Chloromethane	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Dibromochloromethane	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	1,2-Dichlorobenzene	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	1,3-Dichlorobenzene	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	1,4-Dichlorobenzene	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	1,1-Dichloroethane	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	1,2-Dichloroethane	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	1,1-Dichloroethene	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	trans-1,2-Dichloroethene	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	1,2-Dichloropropane	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	cis-1,3-Dichloropropene	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	trans-1,3-Dichloropropene	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Ethylbenzene	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Methylene Chloride	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	1,1,2,2-Tetrachloroethane	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Tetrachloroethene	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Toluene	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	1,1,1-Trichloroethane	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	1,1,2-Trichloroethane	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Trichloroethene	<5	97019807	97/03/28		8.	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Trichloroflouromethane	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	m-Xylene & p-Xylene	<5	97019807	97/03/28		8.1	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	o-Xylene	<5	97019807	97/03/28		5.5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q
<5.0	Vinyl Chloride	<5	97019807	97/03/28		<5	97019808	97/03/28	m	<100	97019809	97/03/28	n	<5	97019810	97/03/28	o	NSR	97019859			<5	97019811	97/03/28	q

WHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS

Wastewater Samples

(ug/L)

ethod																											
etection	Date Collected	97/03/25				97/03/25				97/03/25				97/03/25				97/03/25				97/03/25			
imit	Sample Numbers	97019797; 807; 834-40; 971				97019792; 798; 804; 808; 841-847				97019793; 799; 804; 809; 848-854				97019794; 800; 805; 810; 855-57				97019801; 858-64				97019795; 806; 811; 865			
	Tracking Numbers	CN970228 & GN970228				CN970229 & GN970229				CN970230 & GN970230				CN970231 & GN970231				CN970232 & GN970232				CN970249 & GN970249			
		Site 6				Site 7				Site 10				Site 12				Site 9				Site 8			
ug/L)	Compound	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
	EPA 625																								
<5	Acenaphthene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Acenaphthylene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
	Aldrin	ABSENT	97019791	97/03/28	c,d	ABSENT	97019792	97/03/28	c,e	ABSENT	97019793	97/03/28	c,f	ABSENT	97019794	97/03/28	c,g	See EPA method 608				BIT	97019795		b
<5	Anthracene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
	Aroclor 1260	ABSENT	97019791	97/03/28	c,d	ABSENT	97019792	97/03/28	c,e	ABSENT	97019793	97/03/28	c,f	ABSENT	97019794	97/03/28	c,g	See EPA method 608				BIT	97019795		b
<5	Benzidine	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Benzo(a)anthracene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Benzo(a)pyrene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Benzo(b)fluoranthene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Benzo(g,h,i)perylene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Benzo(k)fluoranthene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
	beta-BHC	ABSENT	97019791	97/03/28	c,d	ABSENT	97019792	97/03/28	c,e	ABSENT	97019793	97/03/28	c,f	ABSENT	97019794	97/03/28	c,g	See EPA method 608				BIT	97019795		b
	delta-BHC	ABSENT	97019791	97/03/28	c,d	ABSENT	97019792	97/03/28	c,e	ABSENT	97019793	97/03/28	c,f	ABSENT	97019794	97/03/28	c,g	See EPA method 608				BIT	97019795		b
<5	Bis(2-chloro ethoxy)methane	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Bis(2-chloro ethyl)ether	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Bis(2-chloroisopropyl)ether	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Bis(2-ethylhexyl)phthalate	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	538	97019793	97/03/28	f	28.6	97019794	97/03/28	g	NT				BIT	97019795		b
<5	4-Bromophenyl Phenyl Ether	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Butylbenzylphthalate	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
	Chlordane	ABSENT	97019791	97/03/28	c,d	ABSENT	97019792	97/03/28	c,e	ABSENT	97019793	97/03/28	c,f	ABSENT	97019794	97/03/28	c,g	See EPA method 608				BIT	97019795		b
<5	4-chloro-3-methyl Phenol	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	2-chloronaphthalene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	2-chlorophenol	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	4-chlorophenyl Phenyl Ether	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Chrysene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
	4,4-DDD	ABSENT	97019791	97/03/28	c,d	ABSENT	97019792	97/03/28	c,e	ABSENT	97019793	97/03/28	c,f	ABSENT	97019794	97/03/28	c,g	See EPA method 608				BIT	97019795		b
	4,4-DDE	ABSENT	97019791	97/03/28	c,d	ABSENT	97019792	97/03/28	c,e	ABSENT	97019793	97/03/28	c,f	ABSENT	97019794	97/03/28	c,g	See EPA method 608				BIT	97019795		b
	4,4-DDT	ABSENT	97019791	97/03/28	c,d	ABSENT	97019792	97/03/28	c,e	ABSENT	97019793	97/03/28	c,f	ABSENT	97019794	97/03/28	c,g	See EPA method 608				BIT	97019795		b
	Dieldrin	ABSENT	97019791	97/03/28	c,d	ABSENT	97019792	97/03/28	c,e	ABSENT	97019793	97/03/28	c,f	ABSENT	97019794	97/03/28	c,g	See EPA method 608				BIT	97019795		b
<5	Dibenzo(a,h)anthracene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	1,2-Dichlorobenzene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	1,3-Dichlorobenzene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	1,4-Dichlorobenzene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	3,3-Dichlorobenzidine	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	2,4-Dichlorophenol	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Diethylphthalate	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	2,4-Dimethylphenol	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Dimethylphthalate	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Di-n-Butylphthalate	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Di-n-Octylphthalate	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	4,6-Dinitro-2-Methylphenol	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b

VHITEMAN PROJECT 17

DATA SUMMARY FORM

SEMI-VOLATILE ORGANICS (cont'd)

Wastewater Samples

(ug/L)

ethod	Date Collected	97/03/25				97/03/25				97/03/25				97/03/25				97/03/25				97/03/25			
etection	Sample Numbers	97019797; 807; 834-40; 971				97019792; 798; 804; 808; 841-847				97019793; 799; 804; 809; 848-854				97019794; 800; 805; 810; 855-57				97019801; 858-64				97019795; 806; 811; 865			
mit	Tracking Numbers	CN970228 & GN970228				CN970229 & GN970229				CN970230 & GN970230				CN970231 & GN970231				CN970232 & GN970232				CN970249 & GN970249			
		Site 6				Site 7				Site 10				Site 12				Site 9				Site 8			
g/L)	Compound	Results	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q	Result	OE NUMBER	Date	Q
<5	2,4-Dinitrophenol	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	2,6-Dinitrotoluene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	2,4-Dinitrotoluene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Fluoranthene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Fluorene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Hexachlorobenzene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Hexachlorobutadiene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Hexachlorocyclopentadiene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Hexachloroethane	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Indeno(1,2,3-c,d)pyrene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Isophorone	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
	4,4-Methylenedianiline	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Naphthalene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
	N-Nitrosodi-n-Propylamine	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	N-Nitrosodiphenylamine	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Nitrobenzene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	2-Nitrophenol	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	4-Nitrophenol	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Pentachlorophenol	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Phenanthrene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Phenol	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	Pyrene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
	Toxaphene	ABSENT	97019791	97/03/28	c,d	ABSENT	97019792	97/03/28	c,e	ABSENT	97019793	97/03/28	c,f	ABSENT	97019794	97/03/28	c,g	NT				BIT	97019795		b
<5	1,2,4-Trichlorobenzene	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b
<5	2,4,6-Trichlorophenol	<10	97019791	97/03/28	d	<10	97019792	97/03/28	e	<10	97019793	97/03/28	f	<10	97019794	97/03/28	g	NT				BIT	97019795		b

APPENDIX D

17 March 1997 Whiteman AFB, Missouri
Industrial Wastewater System Characterization Survey
DEFOAMER WAFB MSDS

3.85 per gallon

MATERIAL SAFETY DATA SHEET

Effective Date: July 22, 1996

DEFOAMER WAFB

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: DEFOAMER WAFB

MANUFACTURER: G.S. Robins & Company
126 Chouteau Avenue
St. Louis, MO 63102
Ph# (314) 621-5155

EMERGENCY PHONE NUMBER:
CHEMTREC: (800)424-9300

CAS Registry Number: Mixture
TSCA Inventory Number: 9016-45-9, 64741-44-2

2 COMPOSITION AND INFORMATION ON INGREDIENTS

Component	CAS Number	Percent	OSHA PEL	ACGIH TLV
Mineral Seal Oil	64741-44-2	80 %	400 PPM TWA	400 PPM TWA
Alkylphenol Ethoxylate	9016-45-9	20 %	None	None

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Caution! Harmful if inhaled and may cause delayed lung injury. Can cause nervous system depression. Aspiration hazard if swallowed - can enter lungs and cause damage. Keep away from heat and flame. Avoid breathing vapor. Use ventilation adequate to keep vapor below recommended exposure limits. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

POTENTIAL HEALTH EFFECTS:

Inhalation: Headache, nasal and respiratory irritation, nausea, drowsiness, breathlessness, fatigue, central nervous system depression, convulsions, and loss of consciousness.

Eye Contact: Irritation experienced as mild discomfort and seen as slight excess redness of the eye.

Skin Contact: May cause irritation. Prolonged exposure may cause dermatitis.

Ingestion: Aspiration hazard, headache, nausea, diarrhea, drowsiness, fatigue, pneumonitis, pulmonary edema, central nervous system depression, convulsions and loss of consciousness.

Cancer: Not considered a carcinogen.

4 FIRST AID MEASURES

Inhalation: If irritation, headache, nausea, or drowsiness occurs, remove to fresh air. If breathing has stopped, perform artificial respiration. Get medical attention if breathing becomes difficult or respiratory irritation persists.

Eye Contact: Immediately flush eyes with plenty of water for a minimum of 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Get medical attention.

Skin Contact: If clothing soaked, immediately remove clothing and wash skin with soap and water. launder clothing before wearing. Get medical attention promptly.

Ingestion: Call a physician immediately. ONLY induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

MATERIAL SAFETY DATA SHEET

11 [illegible]

No data is available or blended product.

12 [illegible]

No data is available or blended product.

13 [illegible]

Disposal Guidance: Utilize licensed waste disposal company. Consider recycling or incineration. Utilize permitted hazardous waste disposal site or industrial waste disposal site as appropriate.

14 [illegible]

DOT Hazardous Material Classification: Defoamer WAFB is not a US Department of Transportation (DOT) Hazardous Material.

DOT Hazardous Substance Classification: Defoamer WAFB is not a DOT Hazardous Substance.

15 [illegible]

TSCA No.: Components of Defoamer WAFB appear on the EPA TSCA inventory list.

RCRA: Defoamer WAFB is not listed as a hazardous waste under any sections of the Resource Conservation and Recovery Act or regulations (40 CFR 261 et seq.).

Superfund: CERCLA/SARA. Not listed under CERCLA (the Comprehensive Environmental Response Compensation and Liability Act) or its 1986 amendments, SARA, (the Superfund Amendments and Reauthorization Act), including substances listed under Section 313 of SARA, Toxic Chemicals, 42 USC 11023, 40 CFR 372.65; Section 302 of SARA, Extremely Hazardous Substances, 42 USC 11002, 40 CFR 355; or the CERCLA Hazardous Substances list, 42 USC 9604, 40 CFR 302.

IARC: The International Agency for Research on Cancer (of the World Health Organization) does not list or categorize the components of Defoamer WAFB as a carcinogen.

NTP Annual Report on Carcinogens: Not listed.

OSHA Carcinogen: Not listed.

16 [illegible]

National Fire Protection Association (NFPA) Classification:

Health	1
Flammability	2
Reactivity	0

Hazardous Materials Information Systems (HMIS):

Blue (Acute Health)	1
Red: Flammability)	2
Yellow: (Reactivity)	0

THE INFORMATION, DATA AND RECOMMENDATIONS CONTAINED HEREIN ARE BELIEVED TO BE ACCURATE. G.S. ROBINS AND COMPANY MAKES NO WARRANTY OF ANY KIND AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

MATERIAL SAFETY DATA SHEET

5. FIRE FIGHTING MEASURES

Flash Point: 260°F TCC
Autoignition Temperature: 490°F (estimated)
Flammable Limits: Upper - 6 (estimated)
Lower - 0.7 (estimated)
Extinguishing Media: Carbon dioxide, dry chemical, or foam. Water stream may spread fire, use water spray only to cool containers exposed to fire. If leak or spill has not ignited, use water spray to disperse the vapors.
Fire and Explosion Hazards: Can form combustible mixtures with air when heated.
Hazardous Decomposition Products: Incomplete combustion can yield carbon monoxide and various hydrocarbons.

6. ACCIDENTAL RELEASE MEASURES

General: Evacuate area and remove ignition sources. Build dike to contain flow. Remove free liquid, do not flush to sewer or open water. Pick up with inert absorbent and place in closed container for disposal.

7. HANDLING AND STORAGE

General: Do not store with strong oxidizers. Store as OSHA Class IIIB combustible liquid.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use local or dilution ventilation to keep airborne concentrations below 400 PPM. Loading, unloading, tank ganging, etc., remain upwind.
Personal Protection: Where airborne concentrations are expected to exceed exposure limits, NIOSH/MSHA certified respirators must be used. Use safety glasses, chemical goggles or face shield as appropriate. Use nitrile, or neoprene gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear, slightly yellow
Specific Gravity: 0.852
Reid Vapor Pressure @ 100°F: estimate less than 0.1 pound
Solubility in Water Dispersible
Melting Point: 20°
Viscosity: 3.7 cs @ 100°F
Boiling Point: 475° - 610°F
Flash Point: 260°F TCC

10. STABILITY AND REACTIVITY

Stability: Defoamer WAFB is a stable product
Hazardous Decomposition Products: Incomplete combustion can yield carbon monoxide and various hydrocarbons. Toxic levels of carbon monoxide , carbon dioxide, irritating aldehydes and ketones may be formed on burning. Heating in air may produce irritating aldehydes, acids, and ketones.
Hazardous Polymerization: Will not occur.

APPENDIX E

Whiteman AFB, Missouri
Industrial Wastewater System Characterization Survey
3M MSDS and Environmental Data Sheets

MATERIAL SAFETY DATA SHEET

3M
3M Center
St. Paul, Minnesota
55144-1000
(612) 733-1110

DIVISION: SPECIALTY CHEMICALS DIVISION
TRADE NAME:
FC-203CF LIGHT WATER(TM) Brand Aqueous Film Forming Foam
ID NUMBER/U.P.C.:

98-0211-5617-3	00-51135-10152-0	98-0211-5618-1	00-51135-10153-7
98-0211-5619-9	00-51135-10154-4	98-0211-5620-7	00-51135-10155-1
98-0211-5621-5	00-51135-10156-8	98-0211-5622-3	00-51135-10157-5
98-0211-5623-1	- - -	ZF-0002-0620-9	- - -
ZF-0002-0789-2	- - -		

ISSUED: August 22, 1996
SUPERSEDES: November 13, 1995
DOCUMENT: 10-4322-3

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
WATER	7732-18-5	69.0 - 71.0
DIETHYLENE GLYCOL BUTYL ETHER	112-34-5	20.0
AMPHOTERIC FLUOROALKYLAMIDE DERIVATIVE +(5803P)	TradeSecret	1 - 5
ALKYL SULFATE SALTS(2) +(5805P, 5806P)	TradeSecret	1.0 - 5.0
TRIETHANOLAMINE	102-71-6	0.5 - 1.5
PERFLUOROALKYL SULFONATE SALTS(5) +(5804P)	TradeSecret	0.5 - 1.5
TOLYL TRIAZOLE	29385-43-1	0.05

New Jersey Trade Secret Registry Number (EIN) 04499600-+

This product contains the following toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR Part 372:
DIETHYLENE GLYCOL BUTYL ETHER

2. PHYSICAL DATA

BOILING POINT: ..... 100 C
(Typical)
VAPOR PRESSURE: [illegible]

Abbreviations: N/D - Not Determined N/A - Not Applicable

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Observe precautions from other sections. Ventilate area. Contain spill. Cover with absorbent material. Collect spilled material. Clean up residue with water. Place in an approved metal container. Seal the container.

RECOMMENDED DISPOSAL:
Discharge spent solutions to a wastewater treatment system. Reduce discharge rate if foaming occurs. Large quantities may adversely affect biological wastewater treatment systems. Incinerate in an industrial or commercial facility in the presence of a combustible material. Combustion products will include HF.

ENVIRONMENTAL DATA:
A Product Environmental Data Sheet (PED) is available.

5-Day Biochemical Oxygen Demand (BOD5): 0.35 g/g; 20-Day Biochemical Oxygen Demand (BOD20): 0.75 g/g; 20-Day BOD/COD: 0.96; Chemical Oxygen Demand (COD): 0.75 g/g; 96-Hr LC50, Fathead minnow (Pimephales promelas): >1,000 mg/L; 48-Hr EC50, Water flea,(Daphnia magna): >1,000 mg/L; 96-Hr EC50, Algae (Selenastrum capricornutum): 143 mg/L (130-156); 30-Min EC50, Photobacterium phosphoreum (Microtox System): 280 mg/L (260-300); 3-Hr, 20C EC50, Activated Sludge Respiration (OECD Method #209): >1,000 mg/L.

REGULATORY INFORMATION:
Volatile Organic Compounds: 200 gms/liter South Coast Air Quality Mgmt Dist Method Calc. @ 20 C..
VOC Less H20 & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. In the event of an uncontrolled release of this material, the user should determine if the release qualifies as a reportable quantity. U.S. EPA Hazardous Waste Number = None (Not U.S. EPA Hazardous).

The components of this product are in compliance with the chemical registration requirements of: TSCA, EINECS, CDSL, AICS, MITI.

EPCRA HAZARD CLASS:
FIRE HAZARD: No PRESSURE: No REACTIVITY: No ACUTE: Yes CHRONIC: Yes

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

Abbreviations: N/D - Not Determined N/A - Not Applicable

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2. PHYSICAL DATA (continued)

VAPOR DENSITY:..... ca. 0.77 Air=1
Calc @ 20C
EVAPORATION RATE:..... < 1 BuOAc=1
SOLUBILITY IN WATER:..... Miscible
SPECIFIC GRAVITY:..... 1.0 Water=1
PERCENT VOLATILE:..... 90 % by wt
pH:..... 8.5
VISCOSITY:..... N/D
MELTING POINT:..... N/A

APPEARANCE AND ODOR:
Clear, amber colored liquid.

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3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... None (Setaflash CC)
FLAMMABLE LIMITS - LEL:..... N/A
FLAMMABLE LIMITS - UEL:..... N/A
AUTOIGNITION TEMPERATURE:..... N/A

EXTINGUISHING MEDIA:
Product is a fire-extinguishing agent.

SPECIAL FIRE FIGHTING PROCEDURES:
Not applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS:
See Hazardous Decomposition section for products of combustion.

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4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
Not applicable.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide, Oxides of Nitrogen, Oxides of Sulfur, Hydrogen Fluoride

Thermal decomposition of usage concentrations does not present a hazard.

Abbreviations: N/D - Not Determined N/A - Not Applicable

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7. PRECAUTIONARY INFORMATION (continued)

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
WATER	NONE	NONE	NONE	NONE	
DIETHYLENE GLYCOL BUTYL ETHER	35	PPM	TWA	CMRG	
AMPHOTERIC FLUOROALKYLAMIDE DERIVATIVE +(5803P)	NONE	NONE	NONE	NONE	
ALKYL SULFATE SALTS(2) +(5805P, 5806P)	NONE	NONE	NONE	NONE	
TRIETHANOLAMINE	5	MG/M3	TWA	ACGIH	
PERFLUOROALKYL SULFONATE SALTS(5) +(5804P)	0.1	MG/M3	TWA	3M	Y
TOLYL TRIAZOLE	NONE	NONE	NONE	NONE	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- 3M: 3M Recommended Exposure Guidelines
- CMRG: Chemical Manufacturer Recommended Exposure Guidelines
- NONE: None Established

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8. HEALTH HAZARD DATA

EYE CONTACT:
Moderate Eye Irritation: signs/symptoms can include redness, swelling, pain, tearing, and hazy vision.

SKIN CONTACT:
Moderate Skin Irritation (after prolonged or repeated contact): signs/symptoms can include redness, swelling, itching, and dryness.

Prolonged or repeated exposure may cause:

May be absorbed through the skin in harmful amounts.

INHALATION:
Single overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include

Abbreviations: N/D - Not Determined N/A - Not Applicable

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6. SUGGESTED FIRST AID (continued)

SKIN CONTACT:
Flush skin with large amounts of water. If irritation persists, get medical attention.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
Drink two glasses of water. Call a physician.

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7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact with vapor, spray, or mist. Wear vented goggles.

SKIN PROTECTION:
Avoid skin contact. Wear appropriate gloves when handling this material. A pair of gloves made from the following material(s) are recommended: butyl rubber.

RECOMMENDED VENTILATION:
Use with adequate dilution ventilation.

RESPIRATORY PROTECTION:
Avoid breathing of vapors, mists or spray. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Half-mask organic vapor respirator with dust/mist prefilter.

PREVENTION OF ACCIDENTAL INGESTION:
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and before eating.

RECOMMENDED STORAGE:
Store away from heat. Keep container closed when not in use.

FIRE AND EXPLOSION AVOIDANCE:
Not applicable.

HMIS HAZARD RATINGS: HEALTH: 2 FLAMMABILITY: 0 REACTIVITY: 0
PERSONAL PROTECTION: X (See precautions, section 7.)

Abbreviations: N/D - Not Determined N/A - Not Applicable

APPENDIX F

Whiteman AFB, Missouri
Industrial Wastewater System Characterization Survey
March 1997 Pollution Prevention
Opportunity Assessment Surveys

Shop: Metals Technology, Survival Equipment, Repair and Reclamation, Pneudraulics, Egress
BUILDING No. 1117
Office Symbol: 442 MS
POC: Capt Weimer
Telephone: 2155

Mission Narrative:

Repair and Reclamation: Performs general maintenance on the A-10. Heavy maintenance includes all aspects of the aircraft operational systems, with the exception of the fuel system.

Electro -Environmental - Service and maintenance of the electrical and environmental aircraft system components for the A-10. These duties include inspecting, repairing, servicing, and modifying systems and equipment. Personnel also perform service, inspection, and maintenance on nickel-cadmium batteries.

Pneudraulics: Inspection, repair and maintenance of the A-10 hydraulic system.

Wheel and Tire: Responsible for inspecting, maintaining and overhauling the A-10 wheel assembly. This includes the cleaning of wheel bearings.

Egress: Responsible for the inspection, maintenance, and repair of the A-10's ejection system.

Survival Equipment: Responsible for the maintenance, inspection, and repair of the A-10 survival equipment including parachutes, life vests, and rubber survival rafts.

Metals Technology: Responsible for limited structural painting and welding of A-10 parts which includes surface preparation done by sanding and wipe-down prior to touching up with the appropriate surface paint. A bead blast booth is available for paint removal on A-10 parts.

Industrial Wastewater Sources:

There are two large drains in the main bay, one runs the entire width of the hangar and is located by the door. The other drain is located in the middle of the hangar and runs the length of the hangar. Touch-up painting is also conducted in close proximity to the middle drain. Aircraft washing is accomplished along with normal floor cleaning. Possible pollutants in this washwater include carbon, fuels, oils, greases, metals, paint over spray, sanding residual and hydraulic fluid.

Pollutants of Concern based on Analytical Results:

Wastewater sampling was conducted at the manhole which services your building. Pollutant annotations are provided for identification of pollutant sources and ensuing pollution prevention initiatives. Potable water sample results are identified for background, baseline information. The following pollutants were detected:

*Hathaway, G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

Contaminant	Date Detected/Range mg/l	*Possible Source	Remarks
Aluminum	97/03/26,27,28 Range 0.0903-1.84	metal alloy	
Antimony	97/03/26,27 Range 0.004-0.005	constituent with alloys with other metals	
Arsenic	97/03/26 Range <0.005-0.005	pigments, alloy	
Barium	97/03/26,27,28 Range 0.063-0.094	lube oil additive, manufacture of paper electrodes, catalyst for organic reactions	potable water = 0.033 mg/l
Cadmium	97/03/26,27,28 Range 0.001-0.006	electroplating, solder for aluminum, constituent of easily fusible alloys, deoxidizer in nickel plating	
Chromium	97/03/28 Range <0.005-0.01	stainless and alloy steels, pigments, electroplating, corrosion resistant products	
Beryllium	97/03/26 Range <0.0005-0.0008	non-corrodible metal used in alloys	
Copper	97/03/26,27, 28 Range 0.022-0.03	metal alloy	potable water = 0.015 mg/l
Iron	97/03/26,27,28 Range 1.75-3.4	metal	potable water = 0.045 mg/l
Lead	97/03/26, 27, 28 Range 0.005-0.007	paint, ink, ceramics, batteries	potable water = 0.001 mg/l
Mercury	97/03/26 Range <0.0002-0.0004	electrical apparatus, measurement systems, paint	
Nickel	97/03/26,27 Range 0.016-0.025	corrosion resistant alloy, electroplating, nic-cad batteries	
Strontium	97/03/26,27,28 Range 0.178-0.286	stainless and alloy steels, pigments, electroplating, corrosion resistant products	

Contaminant	Date Detected	Possible Source	Remarks
Zinc	97/03/24,25,26,27,28 Range 0.031-0.07	galvanizing, electroplating, alloying, paint pigments	potable water = 0.006 mg/l

Recommendations/Conclusions based on Visual Observation and/or Chemical Listing Review:

Reclamation and Repair:

The following chemicals were identified on your chemical authorization listing maintained by the BEE shop. Given their hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished by consulting the Technical Order that mandates it's use and confirming if the T.O. authorizes a different chemical or by calling the item manager.

*Hathaway, G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
8030-01-184-0330	Sealant	Mang Chromate	substitute if possible	health, environment, found in wastestream

Metals Technology/Structural Maintenance: During the survey, I observed numerous containers of methyl ethyl ketone in the paint room, located by the paint guns and gun washer. Recommend investigating the use of a less hazardous substitute to afford worker and environmental protection. Note, it must be in compliance with the applicable Technical Order.

The following chemicals were identified on your chemical authorization listing maintained by the BEE shop. Given their hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished by consulting the Technical Order that mandates it's use and confirming if the T.O. authorizes a different chemical or by calling the item manager.

*Hathaway, G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
8010-00-082-2450	Primer coating kit	strontium chromate	look for substitution	health and detected in wastestream
8010-00-935-7080	Primer	strontium chromate	look for substitution	health and detected in wastestream
8010-01-050-4082	Epoxy resin kit	strontium chromate	look for substitution	health and detected in wastestream
8010-00-297-0593	So Sure Yellow	lead and zinc chromate	look for substitution	health and detected in wastestream
8010-00-515-2208	Paint	lead and zinc	look for substitution	health and detected

		chromate		in wastestream
8030-01-184-0328	PR1436-G	strontium chromate	look for substitution	health and detected in wastestream

Egress: Chemical authorization listing reviewed with no recommendations.

Survival Equipment: Chemical authorization listing reviewed with no recommendations.

Wheel/Tire: Parts washer wastewater used in the Wheel and Tire Shop has been tested and approved for disposal in the drain by Bioenvironmental Engineering. Chemical authorization listing reviewed with no recommendations.

Pneudraulics: Chemical authorization listing reviewed with no recommendations.

Pollution Prevention Recommendations - All:

a. Ensure spill kits are readily available and easily accessible.
b. If applicable, with the exception of drains servicing washracks, cover or block (removable - New Pig Catalog, May 96, pp 161-165 or permanent) shop drains during any operation that could generate a spill or allow paint overspray to reach the drains Utilize drip pans under any equipment or operation that could generate a spill.
c. Minimize the amount of floor washwater by performing as a mop and bucket operation. Dry sweep prior to mopping if in compliance with BEE shop.
d. Place flow restrictors on all hoses.
e. Immediately clean up all spills with absorbant material and dispose as solid waste in drums to be characterized prior to disposal.

Shop: A 10 Phase Inspection, Structural Maintenance, Washrack, Fuels
BUILDING No. 1118
Office Symbol: 442 MS
POC: Mr. Mock - Structural Maintenance, Mr. Chris Jergenson - A-10 Phase
Telephone: 3984

Mission Narrative:

Phase Inspection: This shop is responsible for disassembly, inspection, and repair of the A-10 aircraft. The inspection is required every 400 flying hours. Pre-phase inspection consists of inspection on the fuel system and flight controls. During the 16 day full phase, all applicable shops inspect and repair components as required. The final phase is then conducted where complete functional checks are performed.

Structural Maintenance: Responsible for limited structural painting of the A-10 which includes surface preparation done by sanding and wipe-down prior to touching up with the appropriate surface paint. A bead blast booth is available for paint removal on A-10 parts.

Armament: Inspect, repair, and overhaul the GAU 8/ 30mm gun and associated system components. Inspection involves the removal of the gun and washing in the washrack bay. Repair is done by disassembling the system components and placing in parts washer. Overhaul entails removal, inspection, replacement of parts if indicated, and reassembly.

Fuel System: Maintenance of the A-10 fuel system requirement is identified by excessive fuel leakage or in-flight write-ups. Once the maintenance requirement is identified, the aircraft's fuel tanks are defueled, and depuddled into a bowser. Entry is made into the cell after vapor exhaust/purge is done where the foam is pulled and air dried. Valves and lines are then inspected, repaired, or replaced.

Industrial Wastewater Sources:

Wastewater sources include the washrack wastewater where the A-10 armament is cleaned in addition to normal aircraft washing. Touch-up painting is also conducted in an area close to the washrack drain. Possible pollutants in this washwater include carbon, fuels, oils, greases, metals, paint over spray, sanding residual and hydraulic fluid.

Pollutants of Concern based on Analytical Results:

Wastewater sampling was conducted at the manhole which services your building. Annotation of detected pollutants are provided for identification of pollutant sources and ensuing pollution prevention initiatives. Potable water sample results are identified for background, baseline information. The following pollutants were detected:

* Hathaway, G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

Contaminant	Date Detected/Range mg/l	*Possible Source	Remarks
Cyanide	97/03/22 Range 0.033	electroplating, hardening of metals	
Aluminum	97/03/21,22,23 Range 0.204-0.291	metal alloy	
Barium	97/03/21,22,23 Range 0.042-0.058	lube oil additive, manufacture of paper electrodes, catalyst for organic reactions	potable water = 0.033 mg/l
Cadmium	97/03/21,22,23 Range 0.015-0.109	electroplating, solder for aluminum, constituent of easily fusible alloys, deoxidizer in nickel plating	
Chromium	97/03/22,23 Range 0.006-0.018	stainless and alloy steels, pigments, electroplating, corrosion resistant products	
Copper	97/03/21,22, 23 Range 0.018-0.232	metal alloy	potable water = 0.015 mg/l
Iron	97/03/21,22,23 Range 0.051-0.663	metal	potable water = 0.045 mg/l
Lead	97/03/21,22,23 Range 0.003-0.078	paint, ink, ceramics, batteries	potable water = 0.001 mg/l
Mercury	97/03/23 Range <0.0002-0.0002	electrical apparatus, measurement systems, paint	
Nickel	97/03/26,27 Range 0.019-0.026	corrosion resistant alloy, electroplating, nic-cad batteries	
Strontium	97/03/21,22,23 Range 0.547-0.792	stainless and alloy steels, pigments, electroplating, corrosion resistant products	potable water = 0.223 mg/l
Zinc	97/03/21,22,23 Range 0.029-0.105	galvanizing, electroplating, alloying, paint pigments	potable water = 0.006 mg/l
Titanium	97/03/22 Range 0.028	enamels, pigment	
Selenium	97/03/21 Range 0.005	rectifiers, photo cells	
Bis2ethylhexly phthalate	97/03/21 Range 18.5	plasticizer for PVC	

Recommendations/Conclusions based on Visual Observation and/or Chemical Listing Review:

Fuels Shop: A copy of analysis conducted by the Bioenvironmental Engineering, 27 Mar 96, reference BEF #GM960509-517 was obtained during this survey. The results were for fuel tank sealant from fuel cell repair. Cadmium was detected at 2.47 mg/l with a limit of 1 mg/l. Benzene, ethyl benzene, toluene, and xylene (F001-005) were detected in high concentrations. Please obtain written guidance from the BEE shop for proper disposal of this waste and maintain in your files.

The following chemical was identified on your chemical authorization listing maintained by the BEE shop. Given its hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished by consulting the Technical Order that mandates it's use and confirming if the T.O. authorizes a different chemical or contacting the item manager.

* Hathaway, G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
6810-00-281-2785	methyl ethyl ketone	methyl ethyl ketone	substitute iaw TO	health and environment

Armament: Parts washer water analytical results for the Armament Shop collected by the Bioenvironmental Engineering office 17 Oct 96, reference BEF#GM961342-1344 showed high metal content. Disposal is done as a hazardous waste. Recommend holding and sampling the washwater produced during cleaning of the gun to ensure it does not require disposal as a hazardous waste.

The following chemicals were identified on your chemical authorization listing maintained by the BEE shop. Given their hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished by consulting the Technical Order that mandates it's use and confirming if the T.O. authorizes a different chemical or by calling the item manager.

Hathaway, G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
9150-00-954-7422	Perma Slik	lead	look for substitution	health and detected in wastestream
8010-00-598-5936	Enamel - OD	lead	look for substitution	health and detected in wastestream
8030-00-181-7884	Accelerator	lead	look for substitution	health and detected in wastestream
8030-00-297-6677	CS3100 Pt B	lead	look for substitution	health and detected

				in wastestream

Structural Maintenance: The following chemicals were identified on your chemical authorization listing maintained by the BEE shop. Given their hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished by consulting the Technical Order that mandates it's use and confirming if the T.O. authorizes a different chemical or by calling the item manager.

*Hathaway, G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
8010-00-082-2450	Primer coating kit	strontium chromate	look for substitution	health and detected in wastestream
8010-00-935-7080	Primer	strontium chromate	look for substitution	health and detected in wastestream
8010-01-050-4082	Epoxy resin kit	strontium chromate	look for substitution	health and detected in wastestream
8010-00-297-0593	So Sure Yellow	lead and zinc chromate	look for substitution	health and detected in wastestream
8010-00-515-2208	Paint	lead and zinc chromate	look for substitution	health and detected in wastestream
8030-01-184-0328	PR1436-G	strontium chromate	look for substitution	health and detected in wastestream

Phase Inspection: The following chemicals were identified on your chemical authorization listing maintained by the BEE shop. Given their hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished by consulting the Technical Order that mandates it's use and confirming if the T.O. authorizes a different chemical or by calling the item manager

* Hathaway, G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
6850-01-158-3928	Cleaning Compound	1,1,1 Trichloroethane	look for substitution	health and environment
8030-01-184-0328	Sealing Compound	Strontium Chromate	look for substitution	health and environment detected in wastestream
00-823-7860	Lub Compound	1,1,1 Trichloroethane	look for substitution	health and environment

Pollution Prevention Recommendations - All:

a. Ensure spill kits are readily available and easily accessible.
b. If applicable, with the exception of drains servicing washracks, cover or block (removable - New Pig Catalog, May 96, pp 161-165 or permanent) shop drains during any operation that could generate a spill. Utilize drip pans under any equipment or operation that could generate a spill.
c. Minimize the amount of floor washwater by performing as a mop and bucket operation. Dry sweep prior to mopping.
d. Place flow restrictors on all hoses.
e. Immediately clean up all spills with absorbant material and dispose as solid waste in drums to be characterized prior to disposal.

Shop: A 10 Composite AGE, NDI, Engine Shops
BUILDING No. 1119
Office Symbol: 442 MXS
POC: Mr Steve Miller - AGE, Mr Alan Scott - NDI, Mr Tom O'Neill - Engine Shop
Telephone: 3239, 6058

Mission Narrative :

AGE: This shop provides support for approximately 200 pieces of AGE equipment utilized in support of the A-10 mission. This maintenance is both scheduled and unscheduled. It is comprised of washing, oil changes, and hydraulic and transmission fluid servicing. Stripping and painting of the equipment is done by contract. There is a battery room that is no longer used due to conversion to self contained gel batteries. There is a washrack in one of the bays where equipment is washed and steam cleaned if necessary. This bay is serviced by a small drain - approximately 4" x 4".

NDI: Inspect the A-10 for structural integrity by means of magnetic particle, ultrasound, eddy current, fluorescent penetrant dye or x-ray. Oils are also analyzed for metal particle content.

Engine Shop: Provide second level and unscheduled maintenance for A-10 engines and repair of APUs.

Customer: A-10

Industrial Wastewater Sources:

AGE: Floor washwater from a floor scrubbing machine which may contain small amounts of oils, greases, fuels, transmission, spray paint overspray and hydraulic fluids. This washwater is poured down the drain which flows into an Oil Water Separator (OWS). There are 8 - 4"x4" drains located throughout the bays. Equipment washwater is produced in the washrack bay which may contain oils, greases, fuels, transmission, paint leachate, and hydraulic fluid. The washrack is serviced by an OWS.

NDI: All spent fluorescent penetrant solutions are disposed as hazardous waste. The only wastewater discharges from this activity are the rinsate residuals which occur each time an aircraft part is dipped into straight solution and then followed by a rinse. This shop did not have a silver recovery unit at the time of the survey. According to Mr. Scott all chemical waste from the x-ray process is captured and turned into hazardous waste. Oil waste from oil/metal analysis is turned into hazardous waste.

Engine Shop: A Safety Kleen parts washer is utilized by this shop for the cleaning of bearings. According to Mr. O'Neill, Safety Kleen disposes of the spent fluid (NSN 6850-00-F01-4954) and refills the unit. The only wastewater source would be the result of floor washing which could contain soaps, fuel, oils, greases, and hydraulic fluid.

Pollutants of Concern based on Analytical Results:

Wastewater sampling was conducted at the manhole which services your building and Building 1125 (97/03/25, 26, 27, 28) and sampling was conducted at a manhole which services only your facility (97/03/24). Annotation of detected pollutants is provided for identification of sources and ensuing pollution prevention initiatives. Potable water sample results are identified for background, baseline information. Noteworthy, during the sampling period was a discharge of a green substance similar to glycol or fluorescent dye detected:

* Hathaway, G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

Contaminant	Date Detected/Range mg/l	*Possible Source	Remarks
Oil and Grease	97/03/28 Range 7.36-224	oils, fuels, hydraulic fluid, greases	Wastewater Treatment Plant (WWTP)limit=20
COD	97/03/25,26,28,24 Range 65-5320	organic matter	(WWTP)limit=120
Ammonia	97/03/25,26,27,28 Range 0.8-7.25	organic matter	(WWTP)limit=4.5
Phenols	97/03/24 Range 164	disinfectant, chemical intermediate in synthesis of organic chemicals	(WWTP)limit=100
m,p Xylene	97/03/25,27 Range 1.3-2.2	solvent, cleaning agent, fuel component	
Bis(2-ethylhexyl)phthalate	97/03/25,24 Range 28.6-353	plasticizer for PVC	
Aluminum	97/03/24,25,26,27,28 Range 0.027-13.9	metal alloy	
Antimony	97/03/24,25,26,27,28 Range 0.007-0.351	constituent with alloys with other metals	
Arsenic	97/03/24,25 Range <0.005-0.007	pigments, alloy	
Barium	97/03/24,25,26,27,28 Range 0.038-2.76	lube oil additive, manufacture of paper electrodes, catalyst for organic reactions	potable water = 0.033 mg/l

Contaminant	Date Detected/Range mg/l	Possible Source	Remarks
Cadmium	97/03/24,25,26,27,28 Range 0.009-2.36	electroplating, solder for aluminum, constituent of easily fusible alloys, deoxidizer in nickel plating	
Chromium	97/03/24,25,28 Range 0.017-0.845	stainless and alloy steels, pigments, electroplating, corrosion resistant products	
Cobalt	97/03/24 Range 0.038	alloys, high speed steels, paints, electroplating	
Copper	97/03/24,25,26,27,28 Range 0.079-9.23	metal alloy	potable water = 0.015 mg/l
Iron	97/03/24,25,26,27,28 Range 0.363-30.3	metal	potable water = 0.045 mg/l
Lead	97/03/24,25,26,27,28 Range 0.017-6.42	paint, ink, ceramics, batteries	potable water = 0.001 mg/l
Mercury	97/03/25,26 Range 0.0003-0.0005	electrical apparatus, measurement systems, paint	
Molybdenum	97/03/24,25 Range 0.238-0.276	corrosion inhibitor, lubricant	
Nickel	97/03/24,25,26,27,28 Range 0.012-0.756	corrosion resistant alloy, electroplating, nic-cad batteries	
Silver	97/03/25 Range 0.152-0.337	photography, silver plating, oxidizing agent	
Strontium	97/03/24,25,26,27,28 Range 0.199-1.77	stainless and alloy steels, pigments, electroplating, corrosion resistant products	
Thallium	97/03/25 Range 0.092	easily fusible heavy metal	
Titanium	97/03/24,25 Range 0.079-0.39	welding rod coating, acid resistant enamels, paint pigment	
Zinc	97/03/24,25,26,27,28 Range 0.068-21	galvanizing, electroplating, alloying, paint pigments	potable water = 0.006 mg/l

Recommendations/Conclusions based on Visual Observation and/or Chemical Listing Review:

AGE - Submit a work order to have your washrack drain size/piping and capacity increased. Block all other bay drains by using temporary or permanent drain blocks. Request analysis of floor washwater prior to disposal. After review of the shop's chemical listing, recommend researching hazardous material substitution ONLY in accordance with the applicable Technical Order for the following:

* Hathaway, G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
3439-00-269-9610	rosin core solder	lead copper	substitute iaw TO	detected in wastewater
8010-00-936-8371	lacquer - yellow	lead chromate	substitute iaw TO	detected in wastewater
8030-00-764-6658	antisieze compound	lead monoxide	substitute iaw TO	detected in wastewater
8010-00-852-9033	enamel, yellow	lead chromate	substitute iaw TO	detected in wastewater
9150-01-260-2534	lubricant, solid film	lead	substitute iaw TO	detected in wastewater
6810-00-281-2785	methyl ethyl ketone	methyl ethyl ketone	substitute iaw TO	health and environmental pollutant
6810-00-351-8185	glycol	glycol	contact CEV for recycling	best management practice
8010-00-721-9479	lacquer - orange		check for lead	
8010-00-721-9479	lacquer - blue		check for lead	
8010-00-988-1458	enamel - blue		check for lead	

Recommendations/Conclusions based on Visual Observation and/or Chemical Listing Review:

NDI - Purchase a silver recovery unit and ensure proper waste disposal of x-ray development and fluorescent dye penetrant solutions. Ensure parts that are dipped in the fluorescent dye processes are allowed to air dry as much as possible prior to rinsing.

Engine Shop - Contact CEV concerning solvent recycling and/or maintaining Safety Kleen product.

Pollution Prevention Recommendations - All:

a. Ensure spill kits are readily available and easily accessible.
b. If applicable, with the exception of drains servicing washracks, cover or block (removable - New Pig Catalog, May 96, pp 161-165 or permanent) shop drains during any operation that could generate a spill. Utilize drip pans under any equipment or operation that could generate a spill.
c. Minimize the amount of floor washwater by performing as a mop and bucket operation Dry sweep prior to mopping.
d. Place flow restrictors on all hoses.
e. Immediately clean up all spills with absorbant material and dispose as solid waste in drums to be characterized prior to disposal.

Shop: AGE - Structural Maintenance
Building # : 7
Office Symbol: 509 MXS /LGMFS
POC: A1C Waggoner
Telephone: 7710

Mission Narrative:

This facility is co-located with the AGE facility and segregated in an area designed for stripping and painting. The paint barn is utilized for stripping, preparing, and repainting of AGE equipment, and aircraft parts for the T-38s and B2s. Bead-blasting is used for paint stripping, followed by a surface preparation wipe-down with alcohol or methyl ethyl ketone. Aircraft armament is cleaned with Safestrip. The paint residue from the bead blasting operation is swept from the floor and processed through a hopper which separates by particle size prior to disposal as hazardous waste.

Customer: B2, T38, AGE

Industrial Wastewater Sources:

There are no floor drains located in this shop.

Recommendations/Conclusions based on Visual Observation or Chemical Listing Review:

Please see recommendations for Structural Maintenance, Bldg 27. Also, recommend strict housekeeping to preclude paint over spray on personal protective equipment. Additionally, recommend review by the base BEE shop to ensure appropriate personnel safety measures are in place and adhered to i.e. sweeping up paint residue that may contain lead, chromates etc.

Pollution Prevention Recommendations:

a. Ensure spill kits are readily available and easily accessible.
b. Immediately clean up all spills with absorbant material and dispose as solid waste in drums to be characterized prior to disposal.
c. Utilize drip pans under any equipment or operation that could generate a spill. If the floor is cleaned, using either an automatic floor scrubber or mop/water, recommend analysis of wastewater prior to disposal to preclude possible pollutant discharges.
e. Investigate the possibility of hazardous material substitution ONLY if in accordance with the applicable technical order.

Shop: Armament Systems and Weapons Standardization
BUILDING No. 14
Office Symbol: 509 MXS/LGMR and 509 OG/OGW
POC: TSgt Uptegraft and SMSgt Duffman
Telephone: 7099, 7100

Mission Narrative:

Armament Systems: Responsible for the maintenance and inspection of weapons suspension systems to include the Bomb Rack Assembly (BRA), Bomb Rack Unit 44 (BRU-44) which goes onto the Rotary Launcher Assembly (RLA) for the B2. Cleaning of the BRU 44 is accomplished annually by scraping and wiping off the carbon residue which occurs after firing. The BRA will not be used until later on in the year. It is electrically activated and as such will only require wipe down after firing.

Weapons Standardization: As a support element for the wing this shop provides bomb loading training for the B2. Storage of bomb and AGE support equipment is located in a bay.

Customer: B2

Industrial Wastewater Sources:

There are two circular drains located in the Armament Shop which are used for floor cleaning wastewater which may contain oils and greases. Floor washwater from the bay area where support equipment for the Weapons Standardization is stored may contain small amounts of fluids to include fuel, hydraulic fluid, oils and greases, and glycols.

Pollutants of Concern based on Analytical Results:

Sampling was not done at this facility due to no flow at the appropriate manhole the duration of the survey.

Recommendations/Conclusions based on Visual Observation and/or Chemical Listing Review:

Armament Systems:

The following chemicals were identified on your chemical authorization listing maintained by the BEE shop and also from the listing obtained from shop personnel during the survey. Given their hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished by consulting the Technical Order that mandates it's use and confirming if the T.O. authorizes a different chemical or contacting the item manager.

Additionally, recommend written tracking of hazardous materials brought in to your facility by contractor employees. This tracking should include, as a minimum; chemical, NSN, amount, application, and method of disposal.

*Hathaway, G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
3439-00-163-4348	Bow Solder	lead, copper, arsenic, zinc	substitute IAW T.O.	health, environment found in wastewater downstream
8030-01-319-0554	Sealing Compound	Magnesium Chromate	substitute IAW T.O.	health, environment found in wastewater
8030-00-762-8007	Manganese Dioxide	Magnesium Chromate	substitute IAW T.O.	health, environment found in wastewater
8030-00-965-2444	Pro Seal	Lead	substitute IAW T.O.	health, environment found in wastewater downstream
8030-00-762-8807	Pro Seal	magnesium chromate	substitute IAW T.O.	health, environment, found in wastewater downstream
8010-00-242-2089	stoddard solvent	stoddard solvent	substitute IAW T.O.	health, environment
8030-01-088-0088	Sealant	Lead	substitute IAW T.O.	health, environment, found in wastewater
8030-00-616-9191	Flamemaster - B	Lead	substitute IAW T.O.	health, environment, found in wastewater

Given the inherent characteristics of the B2, it is understood substitution of hazardous materials may not be possible. For this reason, extreme caution must be followed, both to protect the worker and the environment. Additionally, any pollutant discharges from this facility are conveyed through the industrial discharge system and ultimately go to the wastewater treatment plant (WWTP). This is a crucial concern because of possible exposures to the treatment plant personnel and the ultimate disposal of wastewaters unique to this base. The sludge from the WWTP is dewatered, analyzed and land applied, and the effluent is being used to create artificial wetlands. It is critical the wetlands be maintained in a delicate balance in order to afford their continued use.

Pollution Prevention Recommendations - All:

a. Ensure spill kits are readily available and easily accessible.
b. If applicable, with the exception of drains servicing washracks, cover or block (removable - New Pig Catalog, May 96, pp 161-165 or permanent) shop drains during any operation that could generate a spill. Utilize drip pans under any equipment or

operation that could generate a spill.

c. Minimize the amount of floor washwater by performing as a mop and bucket operation. Dry sweep prior to mopping.
d. Place flow restrictors on all hoses.
e. Immediately clean up all spills with absorbant material and dispose as solid waste in drums to be characterized prior to disposal.

Shop: Building Name: Army National Guard Helicopter Maintenance
Shop: Helicopter Maintenance
BUILDING No. 52
Office Symbol:
POC: Mr Wedley
Telephone: 5523

Mission Narrative:

Provide maintenance and operational support for the 25 Apache helicopters assigned to this battalion. Extensive maintenance is performed at the depot located in Springfield Mo. Phase inspections are performed every 150 hours where disassembly, component removal, and reassembly is done. Limited cosmetic painting and sanding is performed. Removal and installation of pneudraulic and hydraulic systems is conducted in this shop. The 20mm guns are cleaned an average of 1-2 times per year, with waste disposal as hazardous waste. Washing of the helicopter occurs once per 30 days. Engine turbine washes are performed every 50 flying hours using water and Gas Path Cleaner. There are four parts washers in this facility which are maintained by Safety Kleen to include removal and replacement of the naptha based cleaning solution.

Customer: Apache Helicopter

Industrial Wastewater Sources:

NOTE: This facility currently flows to the sanitary sewer and will be diverted to the industrial line. Floor washes are done one time per month with a floor scrubbing machine. The washwater may contain small amounts of oils, greases, fuels, hydraulic fluid, paint overspray and metal/paint residue from cosmetic painting operations. This washwater is poured down the drain which is serviced by an Oil Water Separator. The helicopters are also washed in this facility once every 30 days per helicopter. Engine washes are performed every 50 flying hours.

Pollutants of Concern based Analytical Results:

Sampling was not done at this facility due to no flow at the appropriate manhole the duration of the survey.

Recommendations/Conclusions based on Visual Observation and/or Chemical Listing Review:

The following chemicals were identified on your chemical authorization listing obtained from shop personnel during the survey. Given their hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished by consulting the Technical Order (T.O.) that mandates its use

and confirming if the T.O. authorized a different chemical or contacting the item manager.

Additionally, recommend the sampling of engine washwater and aircraft washwater to ensure pollutants are not being discharged.

*Hathaway, G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
8010-00-852-9033	Enamel, Yellow	Lead Chromates	substitute i.a.w. T.O.?	health, environment
6850-01-158-3928	Cleaning Compound	1,1,1 Trichloroethane	substitute i.a.w. T.O.?	health, environment
6850-00-570-9360	Electr Contact Cleaner	1,1,1 Trichloroethane	substitute i.a.w. T.O.?	health, environment
8030-00-764-6658	Antisieze Comp	Lead Chromate	substitute i.a.w. T.O.?	health, environment
9150-01-260-2534	Lubricant, Solid	Lead, Antimony Trioxide, MEK	substitute i.a.w. T.O.?	health, environment
00-664-4318	Zinc Chromate Putty	Zinc Chromate	substitute i.a.w. T.O.?	health, environment
3439-00-269-9610	Rosin Core Solder	Lead, Antimony, Copper	substitute i.a.w. T.O.?	health, environment
01-229-2659	RP 3265	Fibrous Glass	substitute i.a.w. T.O.?	health, environment
8010-00-936-8371	Lacquer, Yellow	Lead Chromate	substitute i.a.w. T.O.?	health, environment
00-922-6917	Adhesive 1599	1,1,1 Trichloroethane	substitute i.a.w. T.O.?	health, environment
00-F00-1896	Gasket Remover	Methylene Chloride	substitute i.a.w. T.O.?	health, environment
00-242-3467	Patch Bond	1,1,1 Trichloroethane	substitute i.a.w. T.O.?	health, environment

Pollution Prevention Recommendations:

a. Ensure spill kits are readily available and easily accessible.
b. If applicable, with the exception of drains servicing washracks, cover or block (removable - New Pig Catalog, May 96, pp 161-165 or permanent) shop drains during any operation that could generate a spill.
c. Minimize the amount of floor washwater by performing as a mop and bucket operation. Dry sweep the floor prior to mopping ONLY with approval from Bioenvironmental Engineering to ensure an inhalation hazard is not created.
d. Place flow restrictors on all hoses.
e. Immediately clean up all spills with absorbant material and dispose as solid waste in drums to be characterized prior to disposal.
f. Investigate the substitution of the above chemicals with less hazardous chemicals ONLY if allowed by the applicable Technical Order

Shop: B2 Docks
BUILDING #s: 5050, 5051, 5052, 5053, 5054, 5055, 5056, 5057, 5058, 5059, 5060
Office Symbol: 509
POC: TSgt Kiplinger
Telephone: 1739

Mission Narrative:

Provide maintenance on B2 as required. All chemicals are brought in from the Support Section in Bldg 33. The maintenance is summarized as follows:

a. Addition of 7808 oil
b. Refueling from in-hangar CASS fuel pit via pentagraph hook-up
c. Limited structural maintenance for minor repairs to include tape replacement, hand sanding using a hepa-vac, surface preparation with Turco, caulking and primer application as necessary, and painting. Personal protective equipment (PPE) during this operation is a full faced respirator and tyvex suit. The hangar floor is covered with plastic and a plastic tent-like structure encloses the area to be worked on. The plastic is removed following the repair and disposed as hazardous waste
d. Ops check - avionics, hydraulic, engine, ECS, and radar system are checked

Customer: B2

Industrial Wastewater Sources:

Floor washwater wastestream which may contain oils, greases, fuel, hydraulic fluid, and uncaptured stripping, painting residue.

Pollutants of Concern based on Analytical Results:

Annotation of sampled pollutants are provided for identification of pollutant sources and ensuing pollution prevention initiatives. Pollutant discharges, particularly metals, were inordinately high on 23 Mar. Potable water levels are provided to demonstrate the presence of low metal levels occurring naturally in the water. The following are contaminants found in the wastewater sampled during the survey:

*Hathaway, G. and Proctor, N. Chemical Hazards of the Workplace

Contaminant	Date Detected/Range mg/l	*Possible Source	Remarks
Bis(2ethylhexyl) phthalate	97/03/21,22,26,27 Range 10.9 - 4,760	PVC plasticizer	
Aluminum	97/03/21,22,23,25,26,27 Range 0.886 - 19.8	Corrosion protectant, alloy	

Contaminant	Date Detected/Range mg/l	*Possible Source	Remarks
Antimony	97/03/21,22,23,25,27 Range 0.004-0.01	alloy constituent	
Arsenic	97/03/21,22,23,25,27 Range 0.005-0.02	metal	
Barium	97/03/21,22,23,25,26,27 Range 0.033-1.11	Catalyst for organic reactions, lube oil additive, electroplating	potable water = 0.033 mg/l
Beryllium	97/03/21,22,23,25, 26,27 Range 0.0094-0.039	Hardening agent in alloys	
Cadmium	97/03/21,22,23,25 Range 0.001-0.043	Electroplating, alloy	
Chromium	97/03/21,22,23,25,26 Range 0.022-0.01	Stainless and alloy steels, pigments, electroplating, catalysts, and corrosion resistant products	
Cobalt	97/03/21, 22,23 Range 0.043-0.125	Alloys, high speed steels, paints, electroplating	
Copper	97/03/21, 22,23,25,26 Range 0.021-2.45	Copper and brass manufacture, welding of copper-containing metals	inordinately high 3/23 potable water = 0.015 mg/l
Iron	97/03/21,22,23,25, 25,26,27 Range 0.426-106	Alloy	inordinately high 3/21,22,23 potable water = 0.045 mg/l
Lead	97/03/21,22,23,25, 26,27 Range 0.002-0.253	Batteries, paint	potable water = 0.001mg/l
Mercury	97/03/26,27 Range 0.0003-0.0004	Electrical apparatus, measurement and control systems, catalyst, paint	
Molybdenum	97/03/21,22 Range 0.036-0.065	Pigments, corrosion inhibitor, lubricant, hydrogenation catalyst	
Nickel	97/03/21,22,23,25,26,27 Range 0.067-0.241	Corrosion resistant alloys, electroplating, nic-cad batteries	

Contaminant	Date Detected	Possible Source	Remarks
Selenium	97/03/22,23 Range <0.005-0.005	Glass and ceramics manufacture, rectifiers and photocells	
Silver	97/03/21,22,23,25 Range 0.007-0.03	Oxidizing agent, photography, silver plating	
Strontium	97/03/21,22,23,25,26,27 Range 0.628-1.47	Stainless and alloy steels, refractory products, pigments, electroplating, corrosion resistant products	potable water = 0.262 mg/l
Thallium	97/03/23 Range <0.001-0.002	Easily fusible heavy metal	
Titanium	97/03/21,22,23,25 Range 0.182-0.083	Acid resistant enamels, paint pigment, ceramics	
Zinc	97/03/21,22,23,25, 26,27 Range 0.116-4.97	Galvanized metals, electroplating, alloying, pigments	potable water = 0.006 mg/l
Oil and Grease	97/03/21*,22,25 *64 mg/l		*97/03/21 = hydraulic fluid

Recommendations/Conclusions based on Visual Observation or Chemical Listing:

Recommend strict adherence to policies of minor touch-up only of B2 exterior involving sanding, stripping, or painting and following the plastic covering and draping procedure used in Bldg 27. Also, blocking (temporary or permanent) the drains will preclude pollutant discharges. This recommendation is based on the metals detected in the wastestream during the sampling period.

Given the inherent characteristics of the B2, it is understood substitution of hazardous materials may not be possible. For this reason, extreme caution must be followed, both to protect the worker and the environment. Additionally, any pollutant discharges from this facility are conveyed through the industrial discharge system and ultimately go to the wastewater treatment plant (WWTP). This is a crucial concern because of possible exposures to the treatment plant personnel and the ultimate disposal of wastewaters unique to this base. The sludge from the WWTP is dewatered, analyzed, and land applied and the effluent is being used to create artificial wetlands. It is critical the wetlands be maintained in a delicate balance in order to afford their continued use.

Pollution Prevention Recommendations:

a. Ensure spill kits are readily available and easily accessible.
b. If applicable, with the exception of drains servicing washracks, cover or block (removable - New Pig Catalog, May 96, pp 161-165 or permanent) shop drains during any operation that could generate a spill or paint residue. Utilize drip pans under any equipment or operation that may generate a spill.

c. Dry sweep the floor prior to mopping (ONLY if procedures for capturing surface preparation residues are followed and concurrence with BEE) and minimize the amount of floor washwater by performing as a mop and bucket operation.
d. Place flow restrictors on all hoses.
e. Immediately clean up all spills with absorbant material and dispose as solid waste in drums to be characterized prior to disposal.
f. Ensure all drains are blocked off prior to surface preparation and painting.

Shop: Fuel Cell
BUILDING No. 1
Office Symbol: 509 MXS/LGMAF
POC: SSgt Mariani
Telephone: 7603

Mission Narrative:

This section is responsible for fuel systems on the B2. Fuel cells on the B2 are located in the wings. Due to the technical difficulty of removing certain elements on the aircraft required for fuel cell entry, this procedure is performed at another out of state location. Northrop performs the aft deck repairs in this facility. Required chemicals for this repair are brought in from Bldg 27, Structural Maintenance. Tank maintenance performed in this shop involves; 1) roping off the area, 2) defueling into a bowser, 3) depuddling using sponges which are wrung out into a bucket 4) purging the tank, 5) obtaining a Lower Explosive Limit (LEL) reading, 6) changing out the required component and 6) exiting the tank. Structural Maintenance repairs the necessary outer structures, refuels and performs operation checks.

Customer: B2

Industrial Wastewater Sources:

There are two trench drains located in this building. The only discharge to these drains are floor washwater from a floor cleaning machine which could contain fuels. Recommend these drains are closed (temporary blocks) during fuel cell maintenance procedures.

Pollutants of Concern based on Analytical Results:

Sampling was not done at this facility due to no flow at the appropriate manhole the duration of the survey.

Recommendations/Conclusions based on Visual Observation and/or Chemical Listing Review:

Recommend floor drains are closed (temporary blocks) during fuel cell maintenance procedures.

The following chemicals were identified on your chemical authorization listing maintained by the BEE shop and also from the listing obtained from shop personnel during the survey. Given their hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished

by consulting the Technical Order that mandates its use and confirming if the T.O. authorizes a different chemical or contacting the item manager.

Additionally, recommend written tracking of hazardous materials brought in to your facility by contractor employees. This tracking should include, as a minimum; chemical, NSN, amount, application, and method of disposal.

*Hathaway, G. and Proctor, N. Chemical Hazards of the Workplace

NSN	Name	*Haz Constituent	Recommended Action	Rationale
8030-00-008-7196	Sealing Compound	Magnesium Chromate	substitute IAW T.O.	health, environment found in wastewater downstream
8030-01-184-0328	PR-1436	Magnesium Chromate	substitute IAW T.O.	health, environment found in wastewater downstream
6810-00-281-2785	Methyl Ethyl Ketone	Methyl Ethyl Ketone	substitute IAW T.O.	health, environment found in wastewater

Given the inherent characteristics of the B2, it is understood substitution of hazardous materials may not be possible. For this reason, extreme caution must be followed, both to protect the worker and the environment. Additionally, any pollutant discharges from this facility are conveyed through the industrial discharge system and ultimately go to the wastewater treatment plant (WWTP). This is a crucial concern because of possible exposures to the treatment plant personnel and the ultimate disposal of wastewaters unique to this base. The sludge from the WWTP is dewatered, analyzed and land applied, and the effluent is being used to create artificial wetlands. It is critical the wetlands be maintained in a delicate balance in order to afford their continued use.

Pollution Prevention Recommendations - All:

a. Ensure spill kits are readily available and easily accessible.
b. If applicable, with the exception of drains servicing washracks, cover or block (removable - New Pig Catalog, May 96, pp 161-165 or permanent) shop drains during any operation that could generate a spill. Utilize drip pans under any equipment or operation that could generate a spill.
c. Minimize the amount of floor washwater by performing as a mop and bucket operation. Dry sweep prior to mopping.
d. Place flow restrictors on all hoses.
e. Immediately clean up all spills with absorbant material and dispose as solid waste in drums to be characterized prior to disposal.

Shop: Propulsion
Building #: 2
Office Symbol: 509 MXS/LGMP
POC: TSgt Fawcette
Telephone: 7123

Mission Narrative:

Supply serviceable engines for the B2, AGE Powered Units, and tail assemblies. The following is a synopsis of each tasking:

a. B-2 - Disassembly of the B2 engine is limited to the fan section and number one area. The upper-lower fan ducts, all external components, and the upper and lower front frame fan cases are removed. The fan blades are then cleaned by wiping off with acetone and solid film lubricant, MIL N 2338 is applied. Fuel and oil are drained into a bucket, parts are inspected for serviceability and finally reassembled. The fuel system is preserved with 1010 fluid or 2.5 gallons of fuel.

b. Age Powered Units - Uncrated and preserved with 1010 or 6081 fluid and flushed twice per year to prevent the o-rings from deteriorating.

c. Tail Pipes - Completely disassembled, inspected, and repaired as required. Lubricated, inner liners replaced and reassembled. Exterior repairs are done by Structures.

Customer: B2, AGE

Industrial Wastewater Sources:

Floor washwater possibly contaminated with incidental spills of fuel, oil, and soap are dumped down the washrack drain located outside the facility. Washrack water containing residual oils, fuels, and engine steam cleaning residue.

Pollutants of Concern based on Analytical Results:

Sampling was not done at this facility due to no flow at the appropriate manhole the duration of the survey.

Recommendations/Conclusions based on Visual Observation or Chemical Listing:

Substitution if possible, of lead containing paints NSN's 8010-00-598-5936 (Olive Drab) and 8010-01-331-6111 (Olive Drab) ONLY if in accordance with appropriate Technical Orders.

Pollution Prevention Recommendations:

a. Ensure spill kits are readily available and easily accessible.
b. If applicable, with the exception of drains servicing washracks, cover or block (removable New Pig Catalog (May 96 pp161-165- or permanent) shop drains during any operation that could generate a spill. Utilize drip pans under any equipment or operation that may generate a spill.
c. Minimize the amount of floor washwater by performing as a mop and bucket operation. Dry sweep the floor prior to mopping.
d. Place flow restrictors on all hoses.
e. Immediately clean up all spills with absorbant material and dispose as solid waste in drums to be characterized prior to disposal.

Shop: Structural Maintenance
BUILDING No. 27
Office Symbol: 509 MXS/LGMFSM
POC: Sgt. Razick
Telephone: 4722

Mission Narrative:

Responsible for maintaining the structural integrity of the B2 aircraft. This includes repair of the aircraft's outer surface which involves sanding, preparing, and painting the surface. Additionally, adhesive and composite work is performed in order to maintain the B2's structural integrity. The aircraft is washed every 120 days.

Customer: B2

Industrial Wastewater Sources:

Wastewater is produced from washing the aircraft in the main bay of the hangar. Possible pollutants in this wastewater would include oils, greases, fuels, metal/composite material leachates, and hydraulic fluid. The floors are washed using a floor scrubbing machine or manually washing. The aforementioned pollutants, with the addition of sanding residuals (metal, composite materials) and overspray are possible.

Pollutants of Concern based on Analytical Results:

Wastewater sampling was conducted at the manhole which services your building. The annotation of pollutants is provided for identification of pollutant sources and ensuing pollution prevention initiatives. Potable water sample results are identified for background, baseline information. The following pollutants were detected:

*Hathaway G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

Contaminant	Date Detected	Possible Source	Remarks
Toluene	97/03/28	solvent for paints and coatings, component of gasoline	
Bis(2ethylhexyl)phthalate	97/03/22,24,26,27, 28	plasticizer for PVC	
Di-n-Octylphthalate	97/03/24,26,28		

Contaminant	Date Detected	Possible Source	Remarks
o,m,p Xylene	97/03/24,26,28	solvent, component of fuel	
Chloroethane* sample contained silicic acid and 4-hydroxy-4methyl pentanone	97/03/24	chemical intermediate, refrigerant, manufacture of ethyl cellulose *silicic acid - arrests decay and disintegration of stone 4-hydroxy-4methyl pentanone- solvent for pigments, cellulose, resins,hydrcarbons, hydraulic brake fluid	
Chloroform* *sample contained silicic acid and 4-hydroxy-4methyl pentanone	97/03/24	solvent *silicic acid - arrests decay and disintegration of stone 4-hydroxy-4methyl pentanone- solvent for pigments, cellulose, resins,hydrcarbons, hydraulic brake fluid	
Ethylbenzene	97/03/28	gasoline, industrial solvent	
Aluminum	97/03/21,22,23,24, 25,26,27,28	metal alloy	
Antimony	97/03/22,27,28	constituent with alloys with other metals	
Barium	97/03/21,2224,25,26 ,27,28	lube oil additive, manufacture of paper electrodes, catalyst for organic reactions	potable water = 0.033 mg/l

Contaminant	Date Detected	Possible Source	Remarks
Cadmium	97/03/21,22,23,24, 25,26,28	electroplating, solder for aluminum, constituent of easily fusible alloys, deoxidizer in nickel plating	
Chromium	97/03/21,25,27	stainless and alloy steels, pigments, electroplating, corrosion resistant products	
Copper	97/03/21,22,23,24, 25,26,27,28	metal alloy	potable water = 0.015 mg/l
Iron	97/03/21,22,23,24, 25,26,27	metal	potable water = 0.045 mg/l
Lead	97/03/21, 22, 23,24,25,26,28	paint, ink, ceramics, batteries	potable water = 0.001 mg/l
Mercury	97/03/25,26	paint, measure devices	
Molybdenum	97/03/21,22	manufacture of special purpose steel, pigment additive	
Nickel	97/03/21,25,27,28	corrosion resistant alloy, electroplating, nic-cad batteries	
Strontium	97/03/21,22,23,24 25,26,27,28	stainless and alloy steels, pigments, electroplating, corrosion resistant products	potable water = 0.262 mg/l
Zinc	97/03/21,22,23,24, 25,26,27,28	galvanizing, electroplating, alloying, paint pigments	potable water = 0.006 mg/l

Recommendations/Conclusions based on Visual Observation and/or Chemical Listing Review:

Following review, chemicals were identified on your chemical authorization listing maintained by the BEE shop and also from the listing obtained from shop personnel during the survey (NOTE: possible classified materials are not identified). Given their hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished by consulting the Technical Order (T.O.) that mandates it's use and confirming if the T.O. authorizes a different chemical or contacting the item manager.

Additionally, recommend written tracking of hazardous materials brought in to your facility by contractor employees. This tracking should include, as a minimum; chemical, NSN, amount, application, and method of disposal.

*Hathaway G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
8010-01-388-4022	Polyurethane	Chromium III	substitute IAW T.O.	health, environment found in wastewater
6810-00-281-2785	MEK	MEK	substitute IAW T.O.	health, environment
8040-01-386-7185	Toluene	Toluene	substitute IAW T.O.	health, environment found in wastewater
6810-00-664-0387	1,1,1 Trichloroethane	1,1,1 Trichloroethane	substitute IAW T.O.	health, environment found in wastewater

NSN	Name	Haz Constituent	Recommended Action	Rationale
8030-00-008-7196	Sealing Compound	Magnesium Chromate	substitute IAW T.O.	health, environment found in wastewater
8010-00-935-7080	Primer, Elect	Strontium Chromate	substitute IAW T.O.	health, environment found in wastewater
8030-01-184-0328	PR 1436	Magnesium Chromate	substitute IAW T.O.	health, environment found in wastewater
8040-01-288-5856	Adhesive	Aluminum	substitute IAW T.O.	health, environment found in wastewater
8030-01-319-0554	Sealing Compound	Manganese Chromate	substitute IAW T.O.	health, environment found in wastewater
8010-01-386-7668	Poly Green	Strontium Chromate	substitute IAW T.O.	health, environment found in wastewater
8030-01-319-0554	Sealing Compound	Nickel	substitute IAW T.O.	health, environment found in wastewater
8040-01-208-9494	Adhesive	Copper Silver	substitute IAW T.O.	health, environment found in wastewater
8010-00-082-2450	Primer	Strontium Chromate	substitute IAW T.O.	health, environment found in wastewater
6810-00-281-2762	MEK	MEK	substitute IAW T.O.	health, environment found in wastewater

NSN	Name	Haz Constituent	Recommended Action	Rationale
8010-00-598-5936	OD Paint	Lead	substitute IAW T.O.	health, environment found in wastewater
8010-01-266-6576	Polyamide	Strontium Chromate	substitute IAW T.O.	health, environment found in wastewater

Given the inherent characteristics of the B2, it is understood substitution of hazardous materials may not be possible. For this reason, extreme caution must be followed, both to protect the worker and the environment. Additionally, any pollutant discharges from this facility are conveyed through the industrial discharge system and ultimately go to the wastewater treatment plant (WWTP). This is a crucial concern because of possible exposures to the treatment plant personnel and the ultimate disposal of wastewaters unique to this base. The sludge from the WWTP is dewatered, analyzed and land applied, and the effluent is being used to create artificial wetlands. It is critical the wetlands be maintained in a delicate balance in order to afford their continued use.

Pollution Prevention Recommendations - All:

a. Ensure spill kits are readily available and easily accessible.
b. If applicable, with the exception of drains servicing washracks, cover or block (removable - New Pig Catalog, May 96, pp 161-165 or permanent) shop drains during any operation that could generate a spill. Utilize drip pans under any equipment or operation that could generate a spill. Designation of one trench drain to contain all washwater and blocking the remaining drains would be a viable option.
c. Minimize the amount of floor washwater by performing as a mop and bucket operation. Dry sweep prior to mopping (ONLY with concurrence of the BEE shop, given the dust particles that may be generated).
d. Place flow restrictors on all hoses.
e. Immediately clean up all spills with absorbant material and dispose as solid waste in drums to be characterized prior to disposal.

Shop: Phase Inspection, NDI, Metals Technology, Electro-Environmental, Pneudraulics, Structures
BUILDING No. T9
Office Symbol: 509 MXS
POC: Phase Inspection - TSgt Blaszeck x3189, Pneudraulics - TSgt Williams x7685, NDI - MSgt Anderson x7695, Electro Environmental - SSgt Landreneau x 7679, Structures - SMSgt Garrett x7709, Metals Tech - TSgt Ferencz x7706
Telephone: see above

Mission Narrative:

Phase Inspection - This shop is responsible for the B2 aircraft inspection required after a predetermined number of flying hours. Prior to arrival for the phase inspection, the B2 is washed and prepared for the inspection at Bldg 27. Inspection is performed on the hydraulic systems and engines with Quality Assurance primarily performing the engine inspections.

NDI: Inspection of the T-38, AGE equipment and Munitions for structural integrity by means of magnetic particle, ultrasound, eddy current, fluorescent penetrant dye or x-ray.

Metals Technology: This shop provides machining, repair, welding, and heat treating of metals and plastics requiring fabrication. This service is provided for the base, other DoD agencies (A-10, Apache Helicopter, T-38), Northrop, and Air Combat Command.

Electro Environmental: Shop responsible for charging and recharging aircraft batteries for the B2 and T-38 aircraft. The nickel cadmium batteries are checked for bad cells. If the cells are found to be serviceable they are rinsed off and replaced. Component repair is also done for relay panels, light assemblies, explosion proof panels, cooling packs, and air conditioning for the B2 and T-38.

Pneudraulics: Provides intermediate overhaul of aircraft support equipment and hydraulics for the T-38 and B2. Periodically makes hose assemblies for AGE.

Structural Maintenance: Provides repair of any composite material portions of the B2 to include special coatings. Sheetmetal work is also performed in this section for the local manufacture of shelves and signs.

Industrial Wastewater Sources: Wastewater sources include the parts washer used in Pneudraulics which washes parts of the B2 brakes and master cylinders. This wastewater was collected, analyzed, and determined not to be a hazardous waste (reference Bioenvironmental Engineering sample number BEF#GM961234-1326, 15 Oct 96. Wastewater disposed by the NDI shop consists of rinse water generated during the fluorescent dye penetrant rinse procedure and x-ray development chemicals which are pretreated by a silver recovery unit. Floor washwater is discharged throughout the

facility. The major potential contributor to this wastestream is the Phase Inspection dock. B2 phase inspections could possibly involve leaking fuel, hydraulic fluids, greases, and oils during the inspection which would minimally be contained in the floor washwater.

Pollutants of Concern based on Analytical Results:

Sampling was conducted at the manhole which services your facility. Annotation of detected pollutants are provided for identification of pollutant sources and ensuing pollution prevention initiatives. Potable water sample results are identified for background, baseline information. The following pollutants were detected:

*Hathaway G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

Contaminant	Date Detected	Possible Source	Remarks
Oil and Grease	97/03/23,24	oils, fuels, hydraulic fluid, greases	
Chemical Oxygen Demand	97/03/22,23,24	organic waste	
Toluene	97/03/24	solvent for paints and coatings, component of gasoline	
Bis(2ethylhexyl)phthalate	97/03/22,24	plasticizer for PVC	
Di-n-Octylphthalate	97/03/22		
o,m,p Xylene	97/03/23,24	solvent, component of fuel	
Ethylbenzene	97/03/24	gasoline, industrial solvent	
Aluminum	97/03/21,22,23,24	metal alloy	
Antimony	97/03/21,24	constituent with alloys with other metals	
Barium	97/03/21,22,23,24	lube oil additive, manufacture of paper electrodes, catalyst for organic reactions	potable water = 0.033 mg/l
Cadmium	97/03/21,22,23,24	electroplating, solder for aluminum, constituent of easily fusible alloys, deoxidizer in nickel plating	
Chromium	97/03/21,23	stainless and alloy steels, pigments, electroplating, corrosion resistant products	
Beryllium	97/03/23	non-corrodible metal used in alloys	

Contaminant	Date Detected	Possible Source	Remarks
Copper	97/03/21,22,23,24	metal alloy	potable water = 0.015 mg/l
Lead	97/03/21, 22, 23,24	paint, ink, ceramics, batteries	potable water = 0.001 mg/l
Molybdenum	97/03/22	manufacture of special purpose steel, pigment additive	
Nickel	97/03/23	corrosion resistant alloy, electroplating, nic-cad batteries	
Strontium	97/03/21,22,23,24	stainless and alloy steels, pigments, electroplating, corrosion resistant products	potable water = 0.262 mg/l
Zinc	97/03/21,22,23,24,	galvanizing, electroplating, alloying, paint pigments	potable water = 0.006 mg/l

Recommendations/Conclusions based on Visual Observation and/or Chemical Listing Review:

Phase Inspection:

The following chemicals were identified on your chemical authorization listing maintained by the BEE shop and also from the listing obtained from shop personnel during the survey. Given their hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished by consulting the Technical Order that mandates it's use and confirming if the T.O. authorizes a different chemical or contacting the item manager.

Additionally, recommend written tracking of hazardous materials brought in to your facility by contractor employees. This tracking should include, as a minimum; chemical, NSN, amount, application, and method of disposal.

*Hathaway G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
8030-01-184-0328	Sealing Compound	Strontium chromate	substitute IAW T.O.	health, environment found in wastewater
8030-01-319-0554	Sealing Compound	Magnesium Chromate	substitute IAW T.O.	health, environment found in wastewater
8030-00-762-8007	Manganese Dioxide	Magnesium Chromate	substitute IAW T.O.	health, environment found in wastewater
8030-00-008-7196	Sealant	Magnesium Chromate	substitute IAW T.O.	health, environment found in wastewater

NSN	Name	Haz Constituent	Recommended Action	Rationale
6810-00-281-2785	MEK	MEK	substitute IAW T.O.	health, environment
8040-01-208-9494	Adhesive	Copper Silver	substitute IAW T.O.	health, environment, found in wastewater
8030-01-088-0088	Sealant	Lead	substitute IAW T.O.	health, environment, found in wastewater
8040-01-288-5856	EA 9394	Aluminum	substitute IAW T.O.	health, environment, found in wastewater
9150-00-249-9290	Release Agent	1,1,1 Trichloroethane	substitute IAW T.O.	health

Metals Technology: Chemical listing reviewed and only recommendation is to try and locate a lead free solder.

Pneudraulics: The following chemical was identified on your chemical authorization listing maintained by the BEE. Given its hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished by consulting the Technical Order that mandates it's use and confirming if the T.O. authorizes a different chemical or contacting the item manager.

*Hathaway G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
8030-01-184-0328	Courtaulds Aerosol	magnesium chromate	substitute IAW T.O.	health, environment found in wastewater

Electro-Environmental: The following chemicals were identified on your chemical authorization listing maintained by the BEE shop. Given their hazardous properties both to the human and environment, please investigate substitution with a less hazardous material. This can be accomplished by consulting the Technical Order that mandates it's use and confirming if the T.O. authorizes a different chemical or by calling the item manager.

*Hathaway G. and Proctor N. Chemical Hazards of the Workplace, Third Edition

NSN	Name	*Haz Constituent	Recommended Action	Rationale
8040-01-208-9494	Cho-Bond 1038	copper silver	substitute IAW T.O.	health, environment found in wastewater
8030-00-148-7362	Sealing compound	lead	substitute IAW T.O.	health, environment found in wastewater
8030-00-174-2597	Sealing compound	lead	substitute IAW T.O.	health, environment found in wastewater

Structural Maintenance: Chemical listing review for this shop can be found in the narrative for Structural Maintenance, Bldg 27 where all of the hazardous materials are maintained.

NDI: Chemical listing reviewed with no additional recommendations.

Pollution Prevention Recommendations - All:

a. Ensure spill kits are readily available and easily accessible.
b. If applicable, with the exception of drains servicing washracks, cover or block (removable - New Pig Catalog, May 96, pp 161-165 or permanent) shop drains during any operation that could generate a spill. Utilize drip pans under any equipment or operation that could generate a spill.
c. Minimize the amount of floor washwater by performing as a mop and bucket operation. Dry sweep prior to mopping.
d. Place flow restrictors on all hoses.
e. Immediately clean up all spills with absorbant material and dispose as solid waste in drums to be characterized prior to disposal.

Shop: Wheel and Tire
Building #: 4
Office Symbol: 509 MXS/LGMMW
POC: Sgt McCarthy
Telephone: 7727

Mission Narrative:

Inspection, build-up, breakdown and repair of wheel assemblies for the T-38 and B2.

Customer: B2, T-38

Industrial Wastewater Sources:

Floor washwater possibly contaminated with incidental spills of oils and greases. Wheel assembly parts are cleaned in a parts washer that uses hot water and natural orange. The sludge from the oil skimmer on the parts washer is placed in a container for disposal. Samples were collected in Aug 94 of the parts washer fluid and sludge. Given the contaminants detected, recommend resampling by Bioenvironmental Engineering and written records maintained with proper disposal protocol.

Pollutants of Concern based on Analytical Results:

Sampling was not done at this facility due to no flow at the appropriate manhole the duration of the survey.

Recommendations/Conclusions based on Visual Observation or Chemical Listing:

Following review of your authorized chemical listing, there are no recommendations.

Pollution Prevention Recommendations:

a. Ensure spill kits are readily available and easily accessible.
b. If applicable, with the exception of drains servicing washracks, cover or block (removable New Pig Catalog (May 96 pp161-165- or permanent) shop drains during any operation that could generate a spill. Utilize drip pans under any equipment or operation that may generate a spill.